MIND TWISTER

A Choose the correct answer.

1. 49 352 in words is
   - A four hundred ninety thousand three hundred and fifty-two.
   - B forty-nine thousand three hundred and fifty-two.
   - C four thousand nine hundred thirty and five two.
   - D four nine three five two.

2. Which of the following digit 8 has the value of 8 000?
   - A 98 034
   - B 75 380
   - C 32 819
   - D 80 745

3. Choose the correct pair.

	Even	Odd
A	71	90
B	125	136
C	388	462
D	3 644	7 033

4. Round off 72 963 to the nearest thousand.
   - A 72 000
   - B 72 900
   - C 72 960
   - D 73 000

5. 86 040 ÷ 12 × 4 = ☐
   - A 1 793
   - B 2 868
   - C 28 680
   - D 1 792

6. $3\frac{2}{5} + 1\frac{3}{4} - 2\frac{1}{10} =$ ☐

   A $2\frac{4}{5}$ B $2\frac{1}{5}$ C $3\frac{1}{4}$ D $3\frac{1}{20}$

7. $5\frac{2}{3} +$ ☐ $= 8\frac{1}{3}$

   A $1\frac{1}{3}$ B $2\frac{2}{3}$ C $3\frac{1}{3}$ D $3\frac{2}{3}$

8. $6\frac{3}{4}$ of 96 is

   A 72 B 576 C 634 D 648

9. 90.874 + 56 + 102.34 = ☐
   - A 101.164
   - B 157.108
   - C 249.214
   - D 2 492.14

10. 360.8 − 217.645 − ☐ = 9.23
    - A 142.232
    - B 133.925
    - C 213.114
    - D 2 467.355

11. What is the percentage of 16 red balloons out of 40 balloons?

    A 8% B 16% C 20% D 40%

12. Find the difference between the sum of RM26 758 and RM31 075 with RM19 846.
    - A RM77 679
    - B RM57 833
    - C RM37 987
    - D RM15 529

13. What is the currency of the Great Britain?
    - A Dollar
    - B Riyal
    - C Yen
    - D Pound Sterling

14. Which payment instrument is used to pay toll fares?
    - A Debit card
    - B Cheque
    - C Prepaid card
    - D Postal order

B Answer the following questions.

1 Rina has a number card.

80 653

a State the place value of 8.

b Partition the number according to its digit value.

2 a 63 291, 31 962, 21 369, 19 632, 91 263

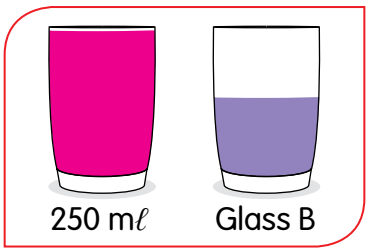
Rearrange the numbers in:

i ascending order.

ii descending order.

b Round off 39 318 to the nearest ten thousand.

3



Estimate the volume of liquid in glass B.

4 27 982, 28 982, _____, _____, 31 982.

a Complete the number pattern above.

b State the number pattern above.

5 Write five even numbers between 100 to 120.

6 Write a number when rounded off to the nearest thousand becomes 60 000.

7 Solve these.

a 837 + 90 845 = ____

b 18 000 − 2 400 = ____

c 546 × 42 = ____

d 24 090 × 37 ÷ 6 = ____

8

23 921	*P*	*Q*	30 675

The sum of the four numbers is 86 590. The value of ***P*** is 1 000 more than ***Q***. What are the values of ***P*** and ***Q***?

9 a Convert the improper fractions to mixed numbers.

i $\frac{5}{3}$ = ____ ii $\frac{19}{7}$ = ____

b Convert the mixed numbers to improper fractions.

i $2\frac{5}{9}$ = ____ ii $4\frac{9}{10}$ = ____

10 Calculate.

a $\frac{4}{7} + \frac{5}{7}$ = ____

b $3\frac{1}{5} + 2 + \frac{2}{3}$ = ____

11 Find the difference between:

a $\frac{4}{7}$ and $\frac{5}{7}$.

b $6\frac{3}{4}$ and $3\frac{1}{2}$.

12 Solve these.

a $6\frac{1}{4} + 1\frac{3}{5} - \frac{1}{2} =$ ☐

b $3 - 1\frac{1}{3} - \frac{5}{7} =$ ☐

c $12 - 7\frac{5}{9} + \frac{2}{3} =$ ☐

13 Complete the following number sentences.

a $\frac{4}{9} +$ ☐ $= 1\frac{1}{3}$

b ☐ $- \frac{2}{5} = \frac{4}{5}$

14 Solve these.

a $487.2 + 32.09 + 5.638 =$ ☐

b $100 - 7.32 - 35.861 =$ ☐

c $79.001 +$ ☐ $+ 3.94 = 83.201$

d $46.23 - 18 -$ ☐ $= 18.57$

15 Calculate.

a $6.834 \times 100 =$ ☐

b $5.273 \times 8 =$ ☐

c $7\,082 \div 1\,000 =$ ☐

d $211.86 \div 9 =$ ☐

16 State $\frac{3}{20}$ in percentage.

17 Convert 37% to fraction.

18 What is the percentage of 12 out of 80 cars?

19 How much needs to be deducted in order to get RM20 500 from a total of RM35 086 and RM29 147?

C Solve the following problems.

1 Din : My score in a competition is 18 040 points. My score is 245 more than Sim's score.
Lan : The total score for the three of us is 37 720 points.

Based on the conversation above:

a Calculate Sim's scores.

b Find the difference between Sim's and Lan's scores.

2 Father put 80 chilli saplings on 3 shelves each. After two months, the saplings were sold equally to 6 buyers. Do all the buyers get 60 saplings? Explain your answer.

3 A wholesaler puts 24 000 oranges into several boxes. Each box contains 96 oranges.

a How many boxes are needed by the wholesaler?

b If the wholesaler has 200 boxes, how many oranges are there in each box?

4 Father saved his money through a salary deduction of 30 months. His savings amounted to RM10 500. How much did he save every month?

5 A grocery store made a profit of RM15 600 which was divided equally among its 5 partners. How much does each partner receive?

6 Gopal, Bakhtiar, and Chong Han took part in a 35 km relay torch run. Gopal ran for 12.5 km and Bakhtiar ran for 10.82 km. How far did Chong Han run?

7 A tank can contain 10 ℓ of water. Radin poured 4.5 ℓ and 3.05 ℓ of water into the tank. What is the volume of water, in ℓ, needed to fill up the tank?

8 Wanie's mother had $2\frac{1}{5}$ kg of flour. She used $\frac{1}{4}$ kg of flour to make shrimp fritters and $\frac{1}{2}$ kg to make doughnuts. How much flour, in kg, is left?

9 Dina's company sold 13 408 pairs of *baju kurung*. 9 837 pairs were not sold.

a How many pairs of *baju kurung* were there initially?

b Puan Rosnani bought 24 pairs of *baju kurung* at RM120 each. How much does Puan Rosnani need to pay in total?

10 Wafiq bought 10.2 kg of *langsat*. He gave some of the *langsat* to his neighbours. The mass of the *langsat* left was 3.8 kg.

a What was the mass of *langsat* given to his neighbours?

b The remainder of the *langsat* were tied into 8 equal bunches of similar mass. What is the mass of each bunch?

11 Rishi plans to buy a set of toys at the price of RM155 within three months using his pocket money savings.

a What does Rishi need to do?

b Rishi saves RM3 every day. Will he achieve his goal?

TIME

12-HOUR AND 24-HOUR SYSTEMS

1

Itinerary of ETS from North to South
Padang Besar – KL Sentral – Gemas
Effective 3/6/2018

Station / Operation day	EG9221 Every day	EP9201 Every day	EP9203 Every day	EP9205 Every day	EG9425 Every day
Padang Besar	0747	1119	1520	1713	1805
Bukit Ketri	-	-	-	-	-
Arau	0806	1134	1439	1732	1824
Kodiang	-	-	-	-	-
Anak Bukit	0822				1840
Alor Setar	0829	1155	1500	1754	1847
Kobah	-	-	-	-	-
Gurun	0846				1905
Sungai Petani	0859	1224	1533	1823	1918
Tasek Gelugor	0908	-	-	-	1928

EG9425
Every day
1805

Father, what time will the train EG9425 from Padang Besar depart?

At 6:05 in the evening, Aris.

In the 24-hour system, it is stated as eighteen zero five hours.

The 12-hour system uses a colon between the hour and the minute. The time of the day is also stated.

The 24-hour system uses four digits with the hours mentioned.

- 12-hour system
  - 6:05 in the evening
    - five minutes past six in the evening
- 24-hour system
  - 1805 hours
    - eighteen zero five hours

TEACHER'S NOTES

- Relate the use of the 12-hour system and the 24-hour system in daily situations.
- Use a digital watch when introducing the 12-hour system and the 24-hour system.
- Instil virtues such as punctuality and time planning.
- Emphasise the need to specify a.m., p.m., morning, noon, evening, night, and midnight in the 12-hour system.

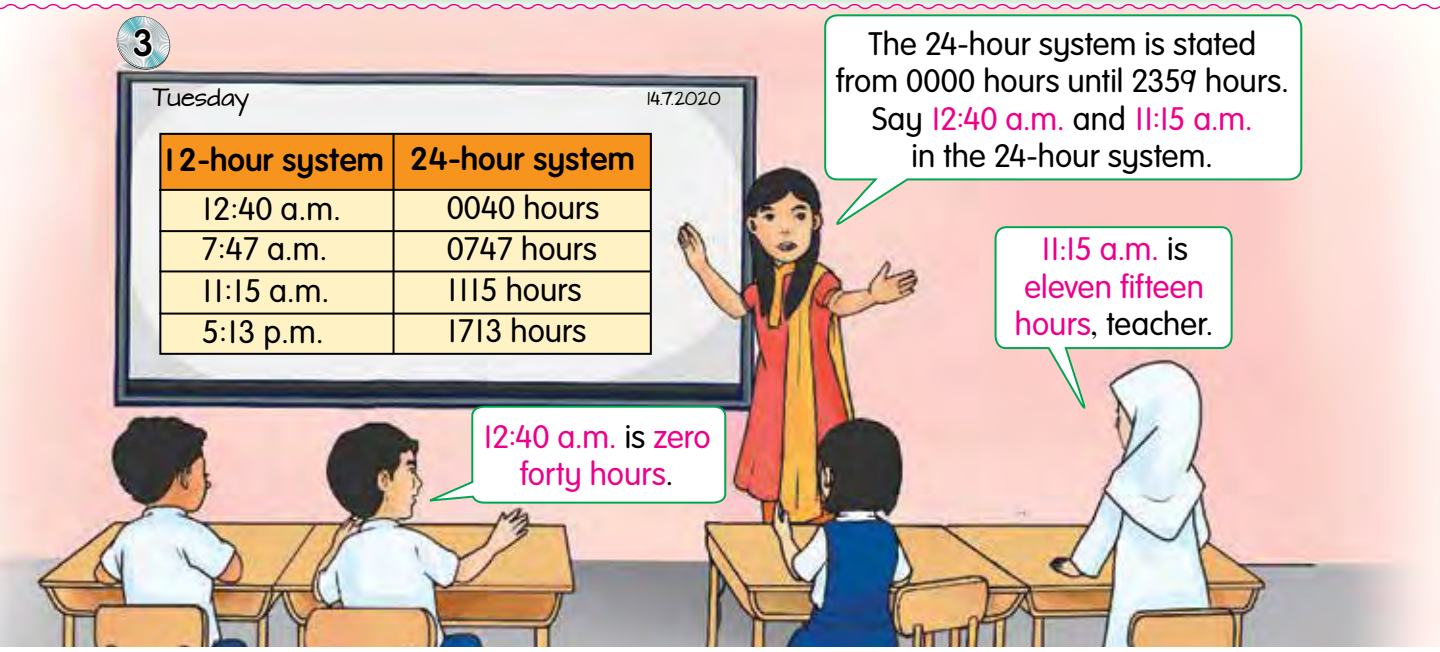
2

8:23 p.m.

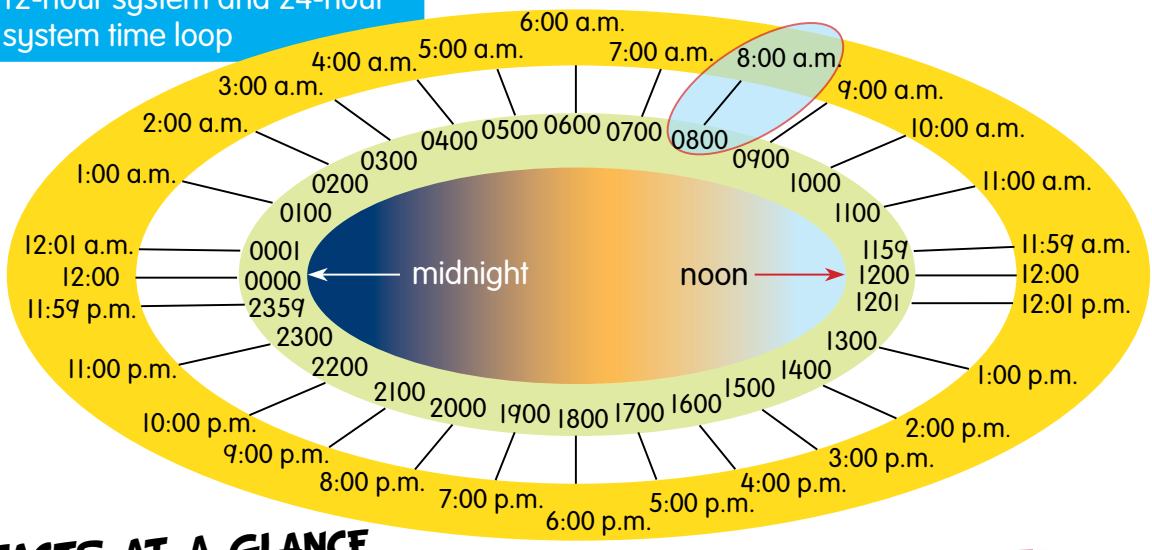
2023 hours

Which of the time displayed is in the 24-hour system?

3



12-hour system and 24-hour system time loop



FACTS AT A GLANCE

a.m. means ante meridiem. Time represented as a.m. is after midnight until before noon.

p.m. means post meridiem. Time represented as p.m. is after noon until before midnight.

TEACHER'S NOTES

- Drill pupils to say the time in the 24-hour system.
- Introduce 12:00 noon as 1200 hours and 12:00 midnight as 0000 hours.
- Surf https://www.worldatlas.com/articles/what-does-am-and-pm-mean.html to know more about a.m. and p.m.

4 Convert time to the 24-hour system.

(a) 6:45 a.m. = _____

12-hour system	24-hour system
6:45 a.m.	0645 hours

6:45 a.m. = **0645 hours**

TIPS

12:01 a.m. to 12:59 p.m.

How to write:
- Write 2 digits for the hour unit.
- The minute digits remain.
- Write "hours" after the numerals.

(b) 10:40 p.m. = _____

	hour	minute
	10	40
+	12	00
	22	40

10:40 p.m. = **2240 hours**

TIPS

1:00 p.m. to 11:59 p.m.

How to write:
- Add 12 hours to the hour digits.
- The minute digits remain.
- Write "hours" after the numerals.

5 State 0825 hours in the 12-hour system.

(a) 0825 hours = _____

24-hour system → 0825 hours

12-hour system → 8:25 a.m.

colon, time

0825 hours = **8:25 a.m.**

TIPS

0001 hours to 1159 hours

How to write:
- Write a colon between the hour and minute digits.
- Write "a.m.".

TIPS

1201 hours to 1259 hours

How to write:
- Write a colon between the hour and minute digits.
- Write "p.m.".

1100 hours 1130 hours _____ 1240 hours 1300 hours

11:00 a.m. _____ 12:00 noon _____ 1:00 p.m.

Try to complete the timeline.

TEACHER'S NOTES
- Use a digital watch as teaching aid. Stress on how to write time in the 24-hour system correctly.
- Introduce the relation between the use of morning, noon, evening, night, and midnight.
- Use daily situations such as bus and ferry schedules.

b 1545 hours = ____

Method 1

Method 2

	hour	minute
	15	45
−	12	00
	3	45

TIPS

1300 hours to 2359 hours

How to write:
- Subtract 12 hours from the hour digits.
- Write "p.m.".

1545 hours = **3:45 p.m.**

Which time is correct for 12:10 in the morning?

010 hours | 00:10 hours | 0010 hours | 12:10 a.m.

FUN EXPLORATION

Task Card

Write a short story about a trip to the village by stating the time in the 24-hour system.

A DAY AT KAMPUNG MELUR

9:10 in the morning	depart for the village
11:40 in the morning	arrive at the village
3:30 in the afternoon	fishing at the river
5:00 in the evening	to the orchard
8:00 in the evening	packing up
8:30 in the evening	depart for home

Tools/Materials Task card, stationery, and display paper.

Participants 3 pupils in a group.

Method

1. Take a task card, stationery, and white paper.
2. Complete the task in 15 minutes.
3. Present your group work.

TEST YOURSELF

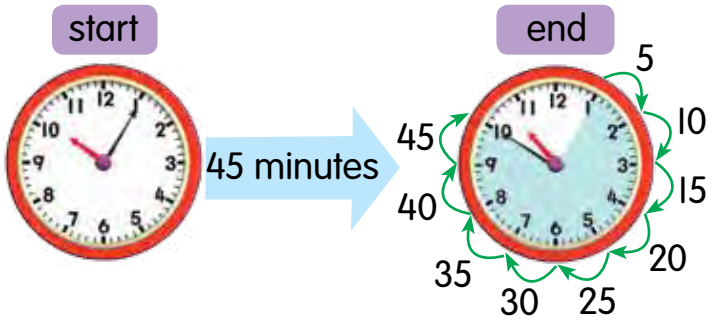
1. Convert the time below to the 24-hour system.
   - a 3:45 in the morning
   - b 11:24 a.m.
   - c 6:10 a.m.
   - d 10:30 in the evening
   - e 2:48 p.m.
   - f 11:46 p.m.
2. State the following time in the 12-hour system.
   - a 0120 hours
   - b 1047 hours
   - c 1450 hours
   - d 1616 hours
   - e 0005 hours
   - f 2359 hours

TEACHER'S NOTES
- Surf http://www.onlineconversion.com/date_12-24_hour.htm to make a connection between the 12-hour system and the 24-hour system.
- Explain the value of appreciating time by doing beneficial activities.

DURATION

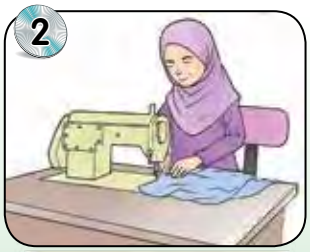
1 We played football from 10:05 in the morning until 10:50 in the morning.

State the duration they played football.

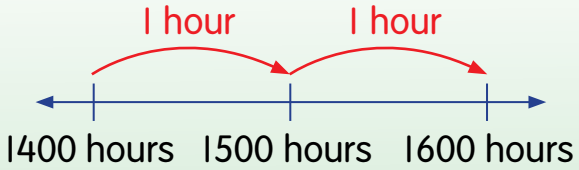


They played football for **45 minutes**.

2



How long did mother take to sew the *baju kurung*?



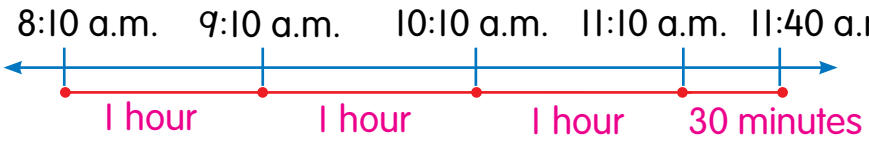
Mother took 2 hours to sew the *baju kurung*.

3 Calculate the duration of the *gotong-royong* from start to finish.

GOTONG-ROYONG PERDANA

Time	Activity
7:40 a.m.	Assembly and briefing
8:10 a.m.	*Gotong-royong* in zones
11:40 a.m.	End of *gotong-royong* and refreshments

Method 1



Method 2

	hour	minute
	11	40
−	8	10
	3	30

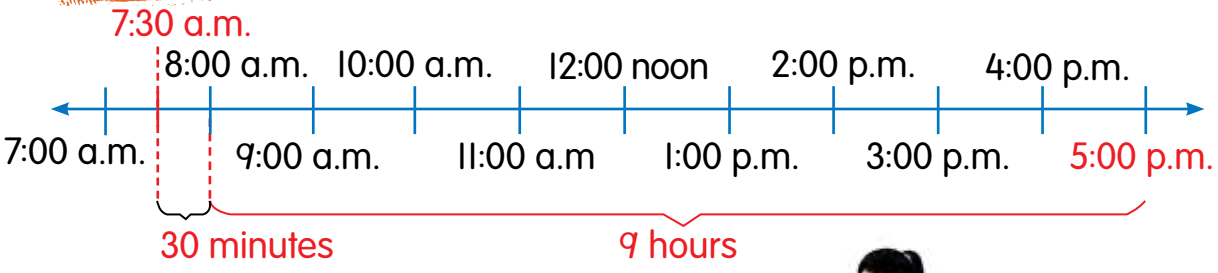
The duration of the *gotong-royong* is **3 hours 30 minutes**.

TEACHER'S NOTES

- Vary methods of calculating the duration of activities in school such as quality day, co-curriculum day, and school sports day.
- Discuss the connection of duration with the movements of the minute and second hands, and the hour and minute hands.

4 Father works from 7:30 in the morning to 5:00 in the evening. Calculate father's duration of work.

Method 1



Method 2

5:00 p.m.
= 1700 hours

	hour	minute
	~~16~~ ~~17~~	~~60~~ ~~00~~
–	7	30
	9	30

Convert 1 hour to 60 minutes.

Father's duration of work is **9 hours 30 minutes**.

***Sayangi Malaysiaku* Day Schedule**

Time	Event
8:15 – 8:45 in the morning	Uniform Units Parade
8:45 – 9:00 in the morning	Headmaster's Speech
9:00 – 9:30 in the morning	Aerobics
9:30 – 11:30 in the morning	Patriotic Song/Colouring Contest
11:30 in the morning – 12:30 in the afternoon	Prize Giving Ceremony

Which activity has the longest duration? Prove it.

TEST YOURSELF

1 State the duration from:

(a) 10:15 a.m. to 10:35 a.m.

(b) 4:40 p.m. to 6:40 p.m.

2 Calculate the duration.

Start time	End time
0920 hours	1850 hours
6:25 in the evening	11:05 at night

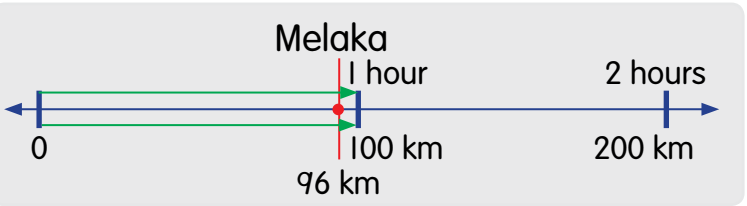
3 Andy goes to school from 0740 hours to 1310 hours. What is the duration of Andy's schooling?

TEACHER'S NOTES

- Surf http://www.easysurf.cc/tspan-s.htm for enrichment activity.
- Explain to pupils that the spirit of patriotism is very important to ensure that the country continues to be at peace, to flourish, and prosper.

TIME ESTIMATION

1 Travelling distance for 100 km takes 1 hour.
What is the estimated time taken to reach Melaka?



The estimated time taken to reach Melaka is **about 1 hour**.

Estimate the time taken to reach Muar and Batu Pahat.

2 Estimate the time taken to label 250 bottles of chilli sauce.

30 minutes = 60 bottles

250 bottles

60 bottles	60 bottles	60 bottles	60 bottles	10	50 bottles
30 minutes	30 minutes	30 minutes	30 minutes	?	

minutes

The estimated time taken to label 250 bottles of chilli sauce is **more than 120 minutes**.

TEST YOURSELF

1 Puan Aina packs 300 packets of crisps in about 5 hours. Calculate the estimated time taken to pack:

(a) 2 100 packets. (b) 150 packets.

2 My brother made two origami cranes in about 10 minutes. Estimate the time taken to make:

(a) 10 origami cranes. (b) 15 origami cranes.

TEACHER'S NOTES

- Stress that approximation of time is not a proportion concept.
- Ask pupils to explore Google Maps application to see the relation between distance and time to go to a place.
- Accept reasonable answers from pupils for estimation.

RELATIONSHIP BETWEEN MILLENIUM, CENTURIES, DECADES, AND YEARS

10 years

1 decade

Relationship involving units of time

1 millenium

1 000 years

1 century

100 years

The Bugis house is 100 years old.

Source: https://www.bharian.com.my/node/178829

The ancient mosque found is 1 000 years old.

Source: https://dymash.wordpress.com/2009/08/11/heboh-ditemukan-bangunan-masjid-kuno-berusia-1000-tahun/

MIND TEASER

Complete the following.

1 decade = 10 years

10 decades = ____ years = ____ century

1 century = 100 years

10 centuries = ____ years = ____ millenium

TEST YOURSELF

Complete these.

a 1 decade = ____ years

b 1 century = ____ years

c 1 millenium = ____ years

TEACHER'S NOTES

- Use pictures to show the age or period of an object or event.
- Conduct a brainstorming session that relates pictures to age, and art and design.

CONVERSION OF UNITS OF TIME

A HOURS AND DAYS

1 Jayveson Panting and his family went for a holiday in Lahad Datu for 3 days. State 3 days in hours.

3 days = ☐ hours

3 days = 3 × 24 hours
= 72 hours

3 days = **72** hours

TIPS

× 24

day ⟷ hour

÷ 24

2 **FACTS AT A GLANCE**

The astronaut Sheikh Muszaphar was at the International Space Station (ISS) for 10 days 21 hours.

Source: https://ms.wikipedia.org/wiki/Sheikh_Muszaphar_Shukor

Calculate the total hours he was at ISS.

10 days 21 hours = ☐ hours

10 days = 10 × 24 hours
= 240 hours

240 hours
\+ 21 hours
261 hours

10 days 21 hours = **261** hours

3 36 hours = ☐ day ☐ hours

36 hours = 24 hours + 12 hours
= 1 day 12 hours

36 hours = **1** day **12** hours

4 180 hours = ☐ days ☐ hours

```
      7   days
24 ) 180  hours
   -168
     12  hours
```

180 hours = **7** days **12** hours

TEACHER'S NOTES

- Conduct group activities to calculate the duration of various events such as the duration of travel by aeroplane or ship.
- Surf https://ms.calcprofi.com/time-converter.html to check the conversion of days to hours and vice versa.

B DAYS AND WEEKS

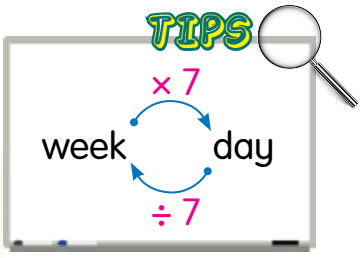
1 Year 4 Marikh pupils were given 4 weeks in the month of March to complete the anti-drug mural. State the number of days taken.

4 weeks = ____ days

Method 1

4 weeks
= 4 × 7 days
= 28 days

Method 2

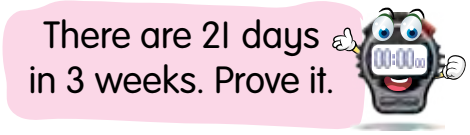


4 weeks = **28** days

2 Convert 56 days to weeks.

56 days = ____ weeks

```
    8   weeks
7 ) 5 6 days
  - 5 6
    0
```



56 days = **8** weeks

3

MID-YEAR BREAK		
24.05.2019	08.06.2019	16 days

What is the duration, in weeks and days, for the mid-year break above?

16 days = ____ weeks ____ days

Method 1

16 days = 7 days + 7 days + 2 days
= 1 week + 1 week + 2 days
= 2 weeks 2 days

16 days = **2** weeks **2** days

Method 2

```
    2   weeks
7 ) 1 6 days
  - 1 4
    2   days
```

TEACHER'S NOTES

- Vary questions using school break calendar such as the total number of weeks and days for: i) duration of the first term. ii) duration of the second term.
- Use the annual calendar to count weeks and days for each month.

C MONTHS AND YEARS

1 FACTS AT A GLANCE

The duration of the construction of Kuala Lumpur Tower until its official opening is 5 years.

Source: https://www.menarakl.com.my/the-tower/history

How many months did the construction of the Kuala Lumpur Tower take until its official opening?

5 years = ☐ months

5 years = 5 × 12 months
= 60 months

$$\begin{array}{r} {\scriptstyle 1} \\ 12 \text{ months} \\ \times \quad 5 \\ \hline 60 \text{ months} \end{array}$$

5 years = **60** months

The duration of the construction of the Kuala Lumpur Tower until its official opening is **60 months**.

TIPS

× 12
year ⇄ month
÷ 12

2 FACTS AT A GLANCE

An Asian elephant can live to 840 months.

Source: 6000 AWESOME FACTS, page 194.

Calculate the age of the elephant in years.

840 months = ☐ years

$$\begin{array}{r} 70 \\ 12\overline{)840} \\ -84 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

70 years
months

840 months = **70** years

The elephant's age is **70** years.

3 Convert 172 months to years and months.

172 months = ☐ years ☐ months

$$\begin{array}{r} 14 \\ 12\overline{)172} \\ -12 \\ \hline 52 \\ -48 \\ \hline 4 \end{array}$$

14 years
months
4 months

172 months = **14** years **4** months

Yong Fatt is 10 years 2 months old. Calculate his age in months.

TEACHER'S NOTES

- Use scientific facts for activities on converting units of time.
- Surf https://www.parlimen.gov.my/yda-senarai-yang-di-pertuan-agong.html?uweb=yg& and calculate the duration of governance of each *Yang di-Pertuan Agong* of Malaysia.

D YEARS, DECADES, AND CENTURIES

1 FACTS AT A GLANCE

In 2019, the Petronas Twin Towers was 23 years old since its construction was completed.

Source: https://www.petronastwintowers.com.my/about#history

Convert 23 years to decades and years.

23 years = ☐ decades ☐ years

$$\begin{array}{r} 2 \\ 10\overline{)\,2\,3} \\ -\,2\,0 \\ \hline 3 \end{array}$$

2 decades

years

3 years

TIPS

× 10

decade ⇄ year

÷ 10

23 years = **2** decades **3** years

2

In 2020, the Leaning Tower of Teluk Intan was 134 years old. Convert the age of the tower to century and years.

134 years = ☐ century ☐ years

134 years = 100 years + 34 years

= ☐ century ☐ years

TIPS

× 100

century ⇄ year

÷ 100

3 2 centuries 7 years = ☐ years

2 centuries = 2 × 100 years

= 200 years

$$\begin{array}{r} 2\,0\,0 \text{ years} \\ +\quad 7 \text{ years} \\ \hline 2\,0\,7 \text{ years} \end{array}$$

2 centuries 7 years = **207** years

4 4 centuries 8 decades = ☐ years

4 centuries = 4 × 100 years

= 400 years

8 decades = 8 × 10 years

= 80 years

$$\begin{array}{r} 4\,0\,0 \text{ years} \\ +\quad 8\,0 \text{ years} \\ \hline 4\,8\,0 \text{ years} \end{array}$$

4 centuries 8 decades = **480** years

TEACHER'S NOTES

- Ask pupils to explore various provenance such as buildings, monuments, historical sites, and artifacts, and relate them to conversion of units of time.
- Carry out activities on converting units of time and collect them in scrapbooks.

4.4.2 (iv)

FUN EXPLORATION TIME CALCULATOR

Materials MS Excel software.

Participants 3 pupils in a group.

Method

1. Scan the QR code to learn how to make a time calculator.
2. Make a time calculator for your group.

SCAN THIS

TEST YOURSELF

1. Complete these.

a) 144 hours = ____ days
b) 5 days = ____ hours
c) 100 hours = ____ days ____ hours
d) 12 weeks = ____ days
e) 74 days = ____ weeks ____ days
f) 2 weeks 4 days = ____ days
g) 108 months = ____ years
h) 10 years = ____ months
i) 86 months = ____ years ____ months
j) 15 years 8 months = ____ months
k) 5 decades = ____ years
l) 90 years = ____ decades
m) 67 years = ____ decades ____ years
n) 300 years = ____ centuries
o) 142 years = ____ century ____ years
p) 2 centuries 9 decades = ____ years

2. 

The Inscribed Stone of Terengganu is 715 years old. State the age of the stone in:

a) decades and years. b) centuries and years.

Source: https://www.bharian.com.my/rencanasastera/2018/05/424558/batu-bersurat-terengganu-asas-peradaban-melayu-islam

3. Taman Maju Daya construction project is expected to be completed in 30 months. State the duration in years and months.

4. Each human's eyelash will drop and regrow every 90 days alternately. State the duration in weeks and days.

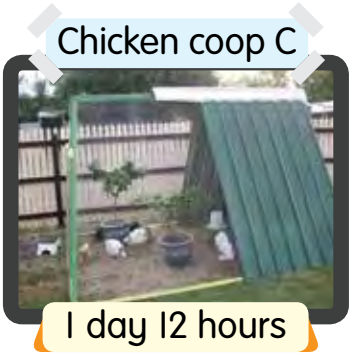
Source: https://www.telegraph.co.uk/news/science/science-news/6034510/Longer-eyelashes-without-mascara-thanks-to-scientific-breakthrough.html

TEACHER'S NOTES

- Vary the values in Fun Exploration and discuss the answers.
- Ask pupils to surf https://www.calculateme.com/time/years/to-decades/ for enrichment activities.

ADDITION OF TIME

1 Father completed three custom made chicken coops in different durations.



a What is the total time taken to build chicken coops A and B?

3 days 4 hours + 2 days 9 hours = ____ days ____ hours

	day	hour
	3	4
+	2	9
	5	13

3 days 4 hours + 2 days 9 hours = **5** days **13** hours

The total time taken to build chicken coops A and B is **5 days 13 hours**.

b Calculate the total time taken to build the three coops.

3 days 4 hours + 2 days 9 hours + 1 day 12 hours = ____ days ____ hours

	day	hour
	3	4
	2	9
+	1	12
	6	25

	day	hour
	6	25
+	1	− 24
	7	1

1 day = 24 hours.
25 hours = 1 day and 1 hour.

3 days 4 hours + 2 days 9 hours + 1 day 12 hours = **7** days **1** hours

The total time taken to build the three coops is **7 days 1 hour**.

Calculate the time taken to build coops A and C.

TEACHER'S NOTES

- Find the duration for several events. Then, carry out the process of adding the time taken.
- Stress on the method of converting hours to days.

2 Read the information given. State the total time taken by Hakimi, in weeks and days, to read all the books.

Time Taken for Hakimi to Read Books

Book	Time
A	4 weeks 5 days
B	6 days
C	2 weeks 4 days

4 weeks 5 days + 6 days + 2 weeks 4 days = ____ weeks ____ day

	week	day
	4	5
		6
+	2	4
	6	15
	+ 2	− 14
	8	1

4 weeks 5 days + 6 days + 2 weeks 4 days = **8** weeks **1** day

Hakimi reads all the books in **8 weeks 1 day**.


Did Hakimi take 33 days to read book A? Discuss.

3 1 year 9 months + 3 years 4 months = ____ years ____ month

	year	month
	1	9
+	3	4
	4	13

4 years 13 months = 4 years + 12 months + 1 month
= 4 years + 1 year + 1 month
= 5 years 1 month

1 year 9 months + 3 years 4 months = **5** years **1** month

TEACHER'S NOTES
- Ask pupils to jot down conversion of units of time first before carrying out the operations.
- Relate with scientific knowledge such as plant growth, planting process, and animal growth period.

4 5 decades 4 years + 2 decades 9 years + 42 years = ☐ decades ☐ years

decade	year
5	4
+ 2	9
7	13

decade	year
7	13
+	42
7	55

$10 \overline{)\,55}$ → 5 decades, 55 years

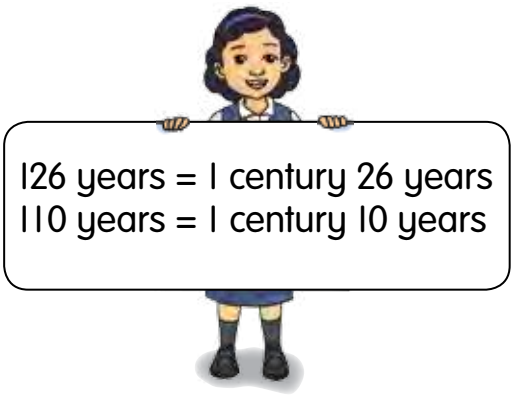
$-\,50$

5 years

7 decades 55 years = 7 decades + 5 decades + 5 years
= 12 decades + 5 years

5 decades 4 years + 2 decades 9 years + 42 years = **12** decades **5** years

5 126 years + 92 years + 110 years = ☐ centuries ☐ years



126 years = 1 century 26 years
110 years = 1 century 10 years

century	year
1	26
	92
+ 1	10
2	128
+ 1	− 100
3	28

126 years + 92 years + 110 years = **3** centuries **28** years

TEST YOURSELF

Calculate.

a 3 days 15 hours + 4 days 10 hours = ☐ days ☐ hours

b 9 weeks 6 days + 9 days = ☐ weeks ☐ days

c 7 years 8 months + 5 years 10 months = ☐ years ☐ months

d 4 days 10 hours + 20 hours + 2 days 12 hours = ☐ days ☐ hours

e 7 weeks 5 days + 15 days + 3 weeks 4 days = ☐ weeks ☐ days

f 29 months + 9 years 10 months + 6 years 4 months = ☐ years ☐ months

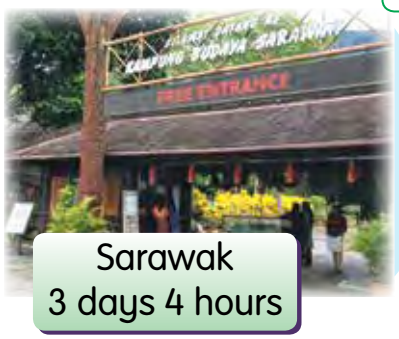
g 8 decades 7 years + 23 years = ☐ decades ☐ years

h 4 centuries + 32 years + 1 century 5 years = ☐ centuries ☐ years

TEACHER'S NOTES

- Enhance pupils' mastery by asking questions that involve unit conversion and regrouping related to scientific knowledge such as life span and growth.
- Carry out group activity with each group getting different questions. Ask each group to present their work.

SUBTRACTION OF TIME



Sarawak
3 days 4 hours

Sabah
[ ] days [ ] hours

1 How long was Nancy in Sabah?

6 days – 3 days 4 hours = [ ] days [ ] hours

	day	hour
	~~6~~ 5	~~0~~ 24
–	3	4
	2	20

6 days – 3 days 4 hours = **2** days **20** hours

2 4 days 2 hours – 1 day 16 hours – 1 day 9 hours = [ ] hours

	day	hour
	~~4~~ 3	~~2~~ 26
–	1	16
	2	10

	day	hour
	2	10
–	1	9
	1	1

1 day 1 hour = 24 hours + 1 hour
= 25 hours

4 days 2 hours – 1 day 16 hours – 1 day 9 hours = **25** hours

Arrange the cards given to construct three correct number sentences.

5 days 3 hours	8 days	5 hours	2 days 16 hours

[ ] – [ ] – [ ] = [ ]

TEACHER'S NOTES

- Stress on the regrouping of units of time from days to hours.
- Surf http://www.aaamath.com/g5_tsbdh.htm for additional activity for pupils.

3 5 weeks 2 days – 6 days = ____ weeks ____ days

	week	day
	4 ~~5~~	9 ~~2~~
–		6
	4	3

Convert 1 week to 7 days.
7 days + 2 days = 9 days

5 weeks 2 days – 6 days = **4** weeks **3** days

4 8 weeks – 6 weeks 2 days – 5 days = ____ days

	week	day
	7 ~~8~~	7 ~~0~~
–	6	2
	1	5

	week	day
	1	5
–		5
	1	0

1 week = 7 days

8 weeks – 6 weeks 2 days – 5 days = **7** days

5 10 years 7 months – 1 year 9 months = ____ years ____ months

	year	month
	9 ~~10~~	19 ~~7~~
–	1	9
	8	10

Convert 1 year to 12 months.
12 months + 7 months = 19 months

10 years 7 months – 1 year 9 months = **8** years **10** months

MIND TEASER

State the difference in age of the buildings in decades and years.

The age of two buildings in 2020.

Kuala Lumpur Old Railway Station

110 years

Royal Museum

92 years

TEACHER'S NOTES

- Stress on regrouping of unit of time from weeks to days and years to months.
- Surf http://www.aaamath.com/g5_tsbdh.htm for additional activity.
- Carry out mental calculation to convert units in order to enhance pupils' understanding.

4.5.1 (ii), (iii)

6 20 decades 3 years – 4 years – 5 decades 8 years = ____ decades ____ year

Convert 1 decade to 10 years.
10 years + 3 years = 13 years

decade	year
~~20~~ 19	~~3~~ 13
–	4
19	9

decade	year
19	9
– 5	8
14	1

20 decades 3 years – 4 years – 5 decades 8 years
= **14** decades **1** year

7 3 centuries 20 years – 1 century 36 years = ____ century ____ years

century	year
~~3~~ 2	~~20~~ 120
– 1	36
1	84

Convert 1 century to 100 years.
100 years + 20 years = 120 years

3 centuries 20 years – 1 century 36 years = **1** century **84** years

TEST YOURSELF

Calculate.

a 9 days 4 hours – 3 days 8 hours = ____ days ____ hours

b 5 weeks – 2 weeks 6 days = ____ days

c 7 years 1 month – 4 years 8 months = ____ years ____ months

d 3 centuries 34 years – 1 century 56 years = ____ centuries ____ years

e 5 days – 2 days 6 hours – 1 day 15 hours = ____ hours

f 8 weeks 4 days – 1 week 5 days – 27 days = ____ weeks ____ days

g 90 months – 2 years 6 months – 3 years = ____ years ____ months

h 13 decades 4 years – 9 years – 2 decades 7 years = ____ decades ____ years

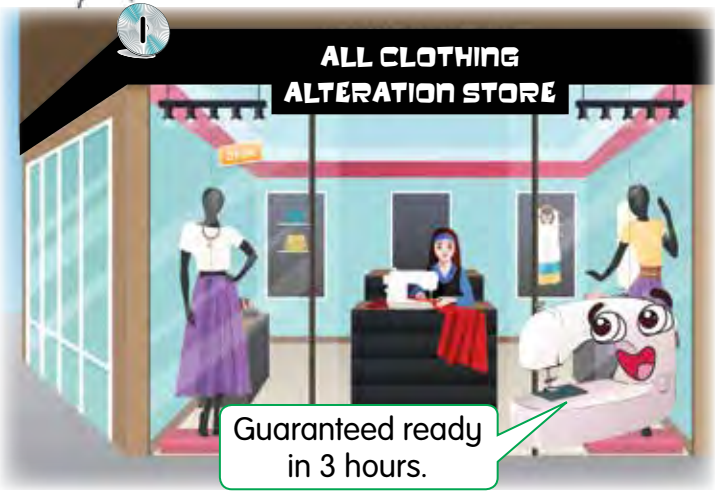
i 10 centuries 27 years – 68 years – 3 centuries 19 years = ____ centuries ____ years

TEACHER'S NOTES

- Encourage pupils to use various calculation strategies such as timeline and arithmetic.
- Encourage pupils to check their answers using the time calculator in websites such as https://www.timeanddate.com/date/dateadd.html

MULTIPLICATION OF TIME

1



What is the time taken, in days and hours, to alter 9 pieces of similar clothes?

9 × 3 hours = ☐ day ☐ hours

	3 hours	2 7 hours	
×	9	− 2 4 hours	1 day
	2 7 hours	3 hours	

9 × 3 hours = **1** day **3** hours

Time taken to alter 9 pieces of similar clothes is **1 day 3 hours**.

Discuss other methods to solve the calculation above.

2 State in days, the duration of the 3 phases of the camp training the Scouts undergo.

2 days 8 hours for each phase of camp training

3 × 2 days 8 hours = ☐ days

Convert 24 hours to 1 day.

day	hour
2	8
×	3
6	2 4
+ 1	− 2 4
7	0

3 × 2 days 8 hours = **7** days

The duration of the 3 phases of camp training is **7 days**.

The Girl Guides are involved in 2 similar phases of camp training. How long, in hours, is the Girl Guides camp training?

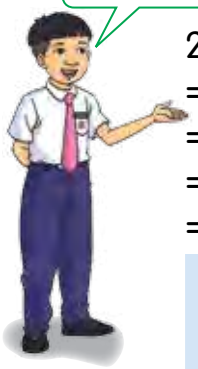
TEACHER'S NOTES

- Conversion of unit of hours to days should be stressed on.
- Instil moral values such as leadership, cooperation, and respecting each other while camping.

3 Multiply 2 weeks 4 days by 8.

8 × 2 weeks 4 days = ____ days

Method 1



2 weeks 4 days
= 1 week + 1 week + 4 days
= 7 days + 7 days + 4 days
= 14 days + 4 days
= 18 days

$$\begin{array}{r} {\scriptstyle 6}\\ 18\text{ days}\\ \times\quad 8\\ \hline 144\text{ days} \end{array}$$

8 × 2 weeks 4 days = **144** days

Method 2

	week	day
	2	4
×		8
	16	32

$$\begin{array}{r} {\scriptstyle 4}\\ 16\text{ weeks}\\ \times\quad 7\\ \hline 112\text{ days} \end{array}$$

$$\begin{array}{r} 112\text{ days}\\ +\quad 32\text{ days}\\ \hline 144\text{ days} \end{array}$$

4 5 × 16 months = ____ years ____ months

$$\begin{array}{r} {\scriptstyle 3}\\ 16\text{ months}\\ \times\quad 5\\ \hline 80\text{ months} \end{array}$$

$$\begin{array}{r|l} & 6 \text{ years}\\ 12 & 80 \text{ months}\\ -72 & \\ \hline & 8 \text{ months} \end{array}$$

State the answer for 4 × 10 years 7 months in years and months.

5 × 16 months = **6** years **8** months

5 10 × 3 decades 7 years = ____ decades

	decade	year
	3	7
×		10
	30	70
+	7	−70
	37	0

10 years = 1 decade
70 years = 7 decades

10 × 3 decades 7 years = **37** decades

TEACHER'S NOTES

- Prepare a set of questions (5 questions for each group) involving multiplication of units of time (hours, days, weeks, months, years, decades, or centuries).
- Ask pupils to do calculation in groups. Present and display each group's work in Gallery Walk.

6 21 × 9 years = ____ century ____ years

$$\begin{array}{r} 21 \\ \times \quad 9 \text{ years} \\ \hline 189 \text{ years} \end{array}$$

189 years = 100 years + 89 years
= 1 century 89 years

21 × 9 years = **1** century **89** years

MIND TEASER

Complete this calculation.

	week	day
	8	6
×		⬡
	79	5

	year	month
	8	6
×		⬡
	59	6

TEST YOURSELF

1 Calculate.

a 3 × 4 days 6 hours = ____ days ____ hours
b 2 × 6 weeks 3 days = ____ weeks ____ days
c 7 × 3 years 1 month = ____ years ____ months
d 9 × 4 centuries 6 years = ____ centuries ____ years
e 10 × 7 days 5 hours = ____ days ____ hours
f 7 × 8 weeks 9 days = ____ weeks
g 5 × 2 years 8 months = ____ months
h 11 × 8 decades 9 years = ____ decades ____ years
i 15 × 3 centuries 12 years = ____ centuries ____ years

2 a Multiply 8 by 2 weeks 1 day. Give the answer in weeks and days.
b 12 decades 7 years is multiplied by 4. Write the answer in decades and years.

TEACHER'S NOTES

- Emphasise to pupils to do conversion of units correctly.
- Discuss the Mind Teaser questions with pupils. Ask pupils to justify their answers given.
- Provide more exercises in the form of worksheets.

DIVISION OF TIME

1 What is the duration, in hours, for one phase of archery training if the duration for each phase is the same?

12 days 9 hours ÷ 3 = ☐ hours

$$\begin{array}{r} 4 \text{ days} \quad 3 \text{ hours} \\ 3 \overline{)\,12 \text{ days} \quad 9 \text{ hours}} \\ -12 \qquad\quad -9 \\ \hline 0 \qquad\quad 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1} \\ 24 \text{ hours} \\ \times \quad 4 \\ \hline 96 \text{ hours} \end{array}$$

4 days 3 hours = 96 hours + 3 hours
= 99 hours

12 days 9 hours ÷ 3 = **99** hours

2

https://www.bharian.com.my/rencana/sastera/2017/11/354750/...

NEWS SPORTS WORLD ENTERTAINMENT BUSINESS ARTICLE

60 HOURS NON-STOP BOOK SALE

bhsastera@bh.com.my

KUALA LUMPUR: One thousand titles, 100 000 copies of books at the Mega National Book Sale that takes place for 60 hours non-stop in November at the Karangkraf Complex, Shah Alam.

Interestingly, all of these books are on sale for RM10 in the market such as Siri Saga Artakusiad, Sains-lah! Konfes Kebangsaan.

How long was the book sale held, in days and hours?

60 hours ÷ 24 = ☐ days ☐ hours

$$\begin{array}{r} {\scriptstyle 5\ 10} \\ \cancel{6}\,\cancel{0} \text{ hours} \\ -24 \text{ hours} \quad \text{1 day} \\ \hline 36 \text{ hours} \\ -24 \text{ hours} \quad \text{1 day} \\ \hline 12 \text{ hours} \end{array} \qquad \text{2 days}$$

60 hours ÷ 24 = **2** days **12** hours

3 10 weeks ÷ 7 = ☐ week ☐ days

$$\begin{array}{r} 1 \text{ week} \quad 3 \text{ days} \\ 7 \overline{)\,10 \text{ weeks} \quad 0 \text{ days}} \\ -\ 7 \qquad +\ 21 \\ \hline 3 \qquad\quad 21 \\ \qquad\quad -\ 21 \\ \qquad\quad\ \ 0 \end{array}$$

3 weeks = 3 × 7 days
= 21 days

10 weeks ÷ 7 = **1** week **3** days

$$\begin{array}{r} 1 \text{ week} \quad 2 \text{ days} \\ 6 \overline{)\,7 \text{ weeks} \quad 2 \text{ days}} \\ -\ 6 \qquad +\ 10 \\ \hline 1 \qquad\quad 12 \\ \qquad\quad -\ 12 \\ \qquad\quad\ \ 0 \end{array}$$

Discuss the calculation above.

TEACHER'S NOTES

- Expose pupils to other methods of calculation such as converting the units first before performing the division.

4.5.2 (i)
4.5.2 (ii)

KPM

4 9 years 4 months ÷ 7 = ☐ year ☐ months

```
   1 year      4 months
7 ) 9 years    4 months
  − 7          + 24
    2          28
               − 28
                0
```

2 years = 2 × 12 months
= 24 months

9 years 4 months ÷ 7 = **1** year **4** months

22 years ÷ 4 = ☐ years ☐ months

```
   5 years     5 months
4 ) 22 years   0 months
  − 20         + 20
    2          20
               − 20
                0
```

Why is the calculation wrong? Discuss.

5 10 decades 8 years ÷ 12 = ☐ years

10 decades = 10 x 10 years
= 100 years
10 decades 8 years = 100 years + 8 years
= 108 years

```
   9 years
12 ) 108 years
  − 108
     0
```

10 decades 8 years ÷ 12 = **9** years

Which is the correct answer for 32 decades divided by 5?

- 60 decades 4 years
- 6 decades 4 years
- 6 decades 40 years
- 64 years

TEACHER'S NOTES

- Vary the calculation methods.
- Carry out group activity and prepare different question cards for each group. Ask pupils to present their work in Gallery Walk.

4.5.2 (iii)
4.5.2 (iv)

6 21 centuries 12 years ÷ 6 = ☐ centuries ☐ years

```
      3 centuries      52 years
6 ) 21 centuries      12 years
    − 18                +300
      3                 312
                      − 30
                        12
                       −12
                         0
```

1 century = 100 years
3 centuries = 300 years

21 centuries 12 years ÷ 6 = **3** centuries **52** years

7 3 centuries 4 years ÷ 8 = ☐ years

3 centuries 4 years
= 300 years + 4 years
= 304 years

```
      38 years
8 ) 304 years
    − 24
      64
     −64
       0
```

3 centuries 4 years ÷ 8 = **38** years

Complete this.
☐ centuries ÷ 4
= 5 centuries 25 years

TEST YOURSELF

1 Calculate the quotient.

a) 21 days 4 hours ÷ 4 = ☐ days ☐ hours
b) 33 weeks 3 days ÷ 6 = ☐ weeks ☐ days
c) 25 years 4 months ÷ 8 = ☐ years ☐ months
d) 16 centuries 30 years ÷ 5 = ☐ centuries ☐ years
e) 50 days ÷ 16 = ☐ hours
f) 58 decades 5 years ÷ 15 = ☐ decades ☐ years

2 How long is the time taken, in days and hours, to complete one shoe rack?

Number of shoe rack	Time taken to complete
10	15 days

TEACHER'S NOTES

- Guide pupils to do calculation by emphasising on the conversion of units of time.
- Provide more exercises in the form of question cards or worksheets.

SOLVE THE PROBLEMS

1 Amer and his family boarded a plane to destination A and then to destination B. Were Amir and his family on the plane for more than 6 hours?

Destination A

departure time	1035 hours
arrival time	1310 hours

Destination B

departure time	1615 hours
arrival time	2020 hours

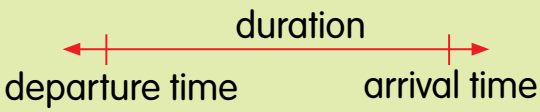
Understand the problem

Destination	A	B
Departure time	1035 hours	1615 hours
Arrival time	1310 hours	2020 hours

Determine whether the duration on the plane is more than 6 hours.

Plan the strategy

Duration is the difference between the departure time and arrival time.



Solve

duration A

hour	minute
~~13~~ 12	~~10~~ 70
− 10	35
2	35

duration B

hour	minute
20	20
− 16	15
4	5

total duration

hour	minute
2	35
+ 4	5
6	40

The total flight duration of **6 hours 40 minutes** is **more than 6 hours**.

Check

hour	minute	
6	40	◀ total duration on the plane
− 4	5	◀ duration on plane B
2	35	◀ duration on plane A

Yes, Amer and his family were on the plane for more **than 6 hours**, that is **6 hours 40 minutes**.

TEACHER'S NOTES

- Guide pupils to use other calculation strategies such as timelines.
- Emphasise on the correct conversion of units of time.
- Vary the questions such as adding the travelling time of a round trip flight.

2 Supardi, Mahendran, and Yee Shin managed to collect 1 000 icons respectively, in different duration from friends in the social media.

1 000 icons	
Supardi	20 weeks 2 days
Mahendran	9 days later compared to Supardi
Yee Shin	18 weeks 6 days

(a) Calculate the duration taken by Mahendran.

(b) What is the difference between the duration taken by Yee Shin and Mahendran?

Solve

(a) 20 weeks 2 days + 9 days = ☐ weeks ☐ days

week	day
20	2
+	9
20	11
+ 1	− 7
21	4

20 weeks 2 days + 9 days = 21 weeks 4 days

The duration taken by Mahendran is **21 weeks 4 days**.

(b) 21 weeks 4 days − 18 weeks 6 days = ☐ weeks ☐ days

week	day
20	11
~~21~~	~~4~~
− 18	6
2	5

21 weeks 4 days − 18 weeks 6 days = 2 weeks 5 days

The difference between the duration taken by Yee Shin and Mahendran is **2 weeks 5 days**.

Does Supardi take 15 days more compared to Yee Shin?

TEACHER'S NOTES

- Ask pupils to check the answers using the inverse operation.
- Use a different calculation method (convert number of weeks to number of days) as an alternative.
- Instil moral values such as self-discipline, appreciating time, and using social media and technology ethically with parental guidance.

3 Father Mother


47 years 1 month | 45 years 6 months

Brother Ayu


18 years 10 months

Father's age is 5 times Ayu's age.

(a) How old is Ayu?

(b) Is her brother's age twice Ayu's age?

Solve

(a) 47 years 1 month ÷ 5 = ☐ years ☐ months

	9 years	5 months
5)	47 years	1 month
	− 45 years	+ 2 4
	2	2 5
		− 2 5
		0

Check the answer for (a) and (b) using the inverse operation.

47 years 1 month ÷ 5 = **9** years **5** months

Ayu is 9 **years 5 months old**.

(b) 2 × 9 years 5 months = ☐ years ☐ months

year	month
9	5
×	2
18	10

2 × 9 years 5 months = **18** years **10** months

Yes, her brother's age is **twice** Ayu's age.

What is the age difference between Ayu and her mother?

TEACHER'S NOTES

- Construct other questions such as the difference between Ayu's age and her brother's.
- Instil moral values such as love, respecting the elderly, and to be considerate.
- Ask pupils to use basic family information to solve problems involving age.

TEST YOURSELF

1 Jarjit and his family boarded a ferry from Kuala Perlis to Langkawi at 1330 hours. State the time in the 12-hour system.

2 The table shows a schedule for History Research Work by a group of Year 4 Intelek pupils. The research is completed in 5 weeks. What is the duration for writing the report?

History Research Work Schedule

Particular	Duration
Discussion and task distribution	3 days
Find information	2 weeks 6 days
Write report	

3 **Indah Construction Company Housing Project**

Project	Duration
Garden A	3 years 10 months
Garden B	3 years 2 months
Garden C	3 years 1 month

A company is constructing three housing projects as shown in the table. Calculate the duration for all the projects to be completed.

4 Hairi's mother works 8 hours and 30 minutes daily. Calculate the duration, in hours and minutes, his mother works in 20 days.

5 Neeta and Chin were assigned to three ASEAN countries for 32 days.

a How many weeks and days were they in the Philippines?

b Calculate the difference in duration, in days, when they were in Cambodia and Brunei.

Cambodia = 11 days

Brunei = 1 week 3 days

The Philippines

6 The 5 phases of construction of a business complex takes 4 years and 7 months. Each construction phase has the same duration for completion. What is the duration, in months, for each construction phase?

TEACHER'S NOTES

- Use various problem solving strategies such as drawing diagrams and working backwards.
- Ask pupils to solve problems in groups and present the calculation work during Gallery Walk.

SECRET CODE

Answer the questions. Fill in the letters that represent the answers in the green box according to the question number to get the keyword.

1. 1 year 4 months + 7 months =
2. 5 hours 55 minutes – 3 hours 5 minutes =
3. 4 × 25 years =
4. 108 years ÷ 6 =
5. 3 years 4 months + 2 years 8 months + 46 months =
6. 20 weeks – 9 weeks 6 days – 1 week 2 days =
7. 8 × 2 days 5 hours =
8. 235 years + 281 years =
9. 13 hours 40 minutes ÷ 4 =
10. 100 days – 48 days – 3 weeks 1 day =

answer cards

G	I
2 hours 50 minutes	100 years
K	**M**
18 years	8 weeks 6 days
Y	**S**
4 weeks 2 days	5 centuries 16 years
U	**A**
3 hours 25 minutes	1 year 11 months
L	**N**
9 years 10 months	17 days 16 hours

KEYWORD

8	1	10	1	7	2	3			
6	1	5	1	10	8	3	1	4	9

MIND CHALLENGE

1. Write the time in the 24-hour system.
   (a) 8:45 a.m. (b) 10:20 p.m. (c) 3:55 in the morning (d) 11:33 at night
2. State the time in the 12-hour system.
   (a) 0615 hours (b) 1110 hours (c) 1612 hours (d) 2255 hours
3. Andrea Guardini won the first stage of the Le Tour de Langkawi 2018. He started cycling at 1030 hours and finished at 1359 hours. Calculate the duration he cycled.
   Source: http://www.cyclingnews.com/races/le-tour-de-langkawi-2018/stage-1/results/
4. Father rides a motorcycle at 60 km per hour. Estimate the time taken to reach his workplace 30 km away.

TEACHER'S NOTES

- Carry out the Mind Riddle activity in groups of four. The group that finishes first wins.
- Modify the questions and the keyword in the Mind Riddle activity to enhance pupils' understanding.

5 Convert the time to the units stated.

(a) 52 hours = ____ days ____ hours
(b) 3 days 10 hours = ____ hours
(c) 46 days = ____ weeks ____ days
(d) 10 weeks 4 days = ____ days
(e) 26 months = ____ years ____ months
(f) 5 years 8 months = ____ months
(g) 5 decades 9 years = ____ years
(h) 172 years = ____ century ____ years

6 Pavitra went for a holiday in Bako National Park, Sarawak for 2 days 12 hours. State the duration, in hours, when she was there.

7 Datuk Azhar Mansor sailed around the world solo in 27 weeks 1 day in 1999. State the duration in days.
Source: https://www.pnm.gov.my/yangpertama/Sohor_Azhar.htm.

8 Calculate.

(a) 2 days 18 hours + 4 days 9 hours = ____ hours
(b) 10 weeks 4 days + 5 weeks 3 days + 6 days = ____ weeks ____ days
(c) 11 months + 3 years 8 months + 10 months = ____ years ____ months
(d) 12 decades 7 years + 9 years + 6 decades 8 years = ____ years
(e) 10 days 7 hours – 3 hours – 3 days 15 hours = ____ days ____ hours
(f) 6 weeks – 3 weeks 6 days = ____ weeks ____ days
(g) 20 years – 15 years 2 months = ____ months
(h) 3 centuries 51 years – 2 centuries 74 years = ____ years

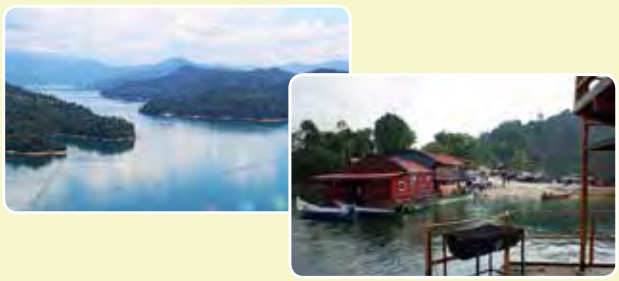
9 Solve these.

(a) 5 × 3 days 12 hours = ____ days ____ hours
(b) 8 × 9 days = ____ weeks ____ days
(c) 10 × 2 years 5 months = ____ years ____ months
(d) 3 × 5 centuries 6 years = ____ centuries ____ years
(e) 10 days 16 hours ÷ 4 = ____ days ____ hours
(f) 34 years ÷ 8 = ____ years ____ months
(g) 9 decades 1 year ÷ 7 = ____ decade ____ years
(h) 215 years ÷ 5 = ____ decades ____ years

TEACHER'S NOTES
- Carry out the Mind Challenge activity in pairs. Then, ask pupils to check each other's answers.

10 Solve the problems.

a Wan and Helmi went for a holiday for 2 weeks. Wan was at Kenyir Lake for 1 week 2 days and the remaining time at the National Park, Pahang. Helmi, on the other hand went for a holiday at Banding Lake for 6 days and spent the remaining time at the National Park, Pahang.



i How long, in hours, was Wan at Kenyir Lake?

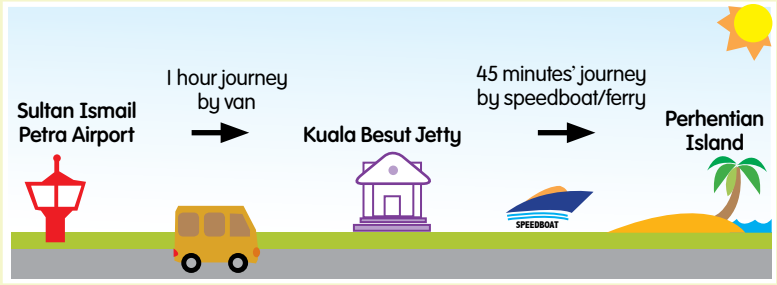
ii Calculate the difference, in days, that Wan and Helmi spent at the National Park, Pahang.

b Ben Long is 10 years 2 months old. His brother is 23 years 5 months old. His sister is 2 years 4 months younger than his brother.

i How old is his sister?

ii What is the age difference between Ben Long and his brother?

c The diagram shows the journey of Aiman's family to Perhentian Island. They arrived at Sultan Ismail Petra Airport at 1145 hours.



i State the time they reached Kuala Besut Jetty in the 12-hour system.

ii They took a break for 1 hour and 15 minutes at the jetty before taking a ferry to the island. At what time will they reach Perhentian Island?

iii Calculate the total time taken by the family to arrive at Perhentian Island.

d Father is 38 years old. Grandfather's age is twice father's age. Father's age is 4 times my age.

i What is grandfather's age in decades and years?

ii Is my age 9 years 2 months? Show the calculation.

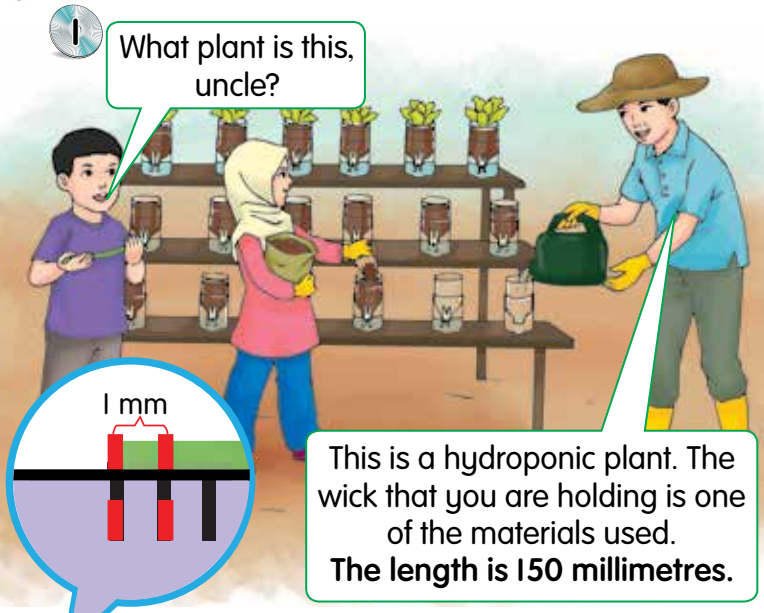
TEACHER'S NOTES

- Guide pupils to use various problem solving strategies such as sketching, making a table, and bar model.

5 LENGTH, MASS, AND VOLUME OF LIQUID

RECOGNISE MILLIMETRE AND KILOMETRE

1



FACTS AT A GLANCE

Materials for hydroponic plant

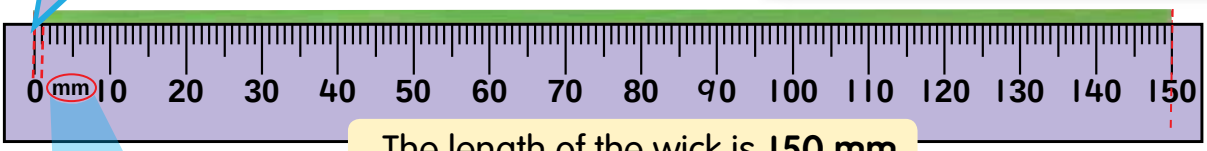
Plastic bottle: 1 ℓ 500 mℓ

Wick: 150 mm

Burned husk and red rock fragments: 150 g

Nutrition solution: 250 mℓ

Hydroponic is a planting method without using soil.

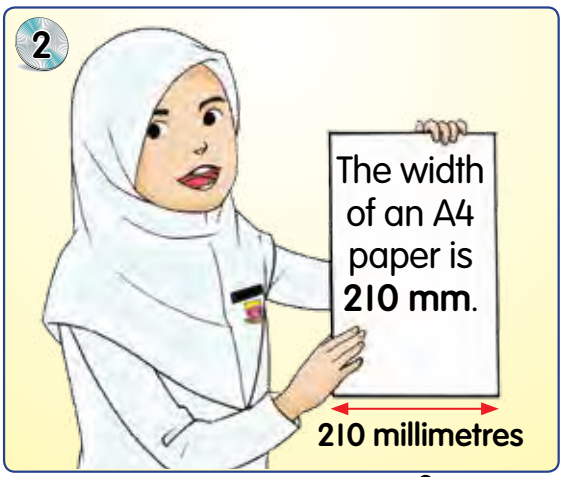


The length of the wick is **150 mm**.

The symbol for **millimetre** is **mm**. **Millimetre** is used to measure small or short objects.

Give an example of another object which is measured in mm.

2



TEACHER'S NOTES

- Ask pupils to find objects around the classroom which are measured in mm.
- Discuss a daily situation involving length measurement. For example, the measurement of the growth of a chilli plant in a science experiment.
- Explain the method of hydroponic planting to pupils.

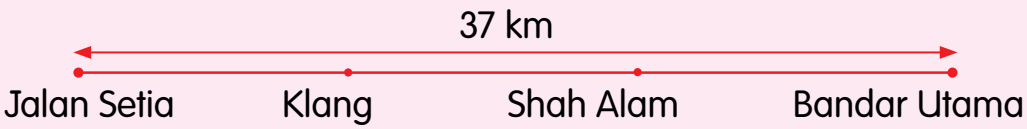
3 a

b

The symbol for **kilometre** is **km. Kilometre** is used to measure the distance between two places that are far apart.

A distance of **1 km** is equal to **1 000 m**.

c The length of Light Rapid Transit 3 (LRT 3) route.



FACTS AT A GLANCE

10 cm = 1 decimetre
10 m = 1 decametre

TEST YOURSELF

State the measurements using the symbols.

a Anis and Harjit joined the 3-kilometre *Seronoknya Membaca* Run.

3 kilometres is written as _____.

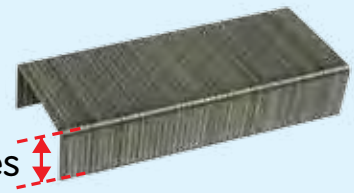
b The distance of Kajang to Sungai Buloh MRT line is 51 kilometres.

51 kilometres is written as _____.

c

_____

d



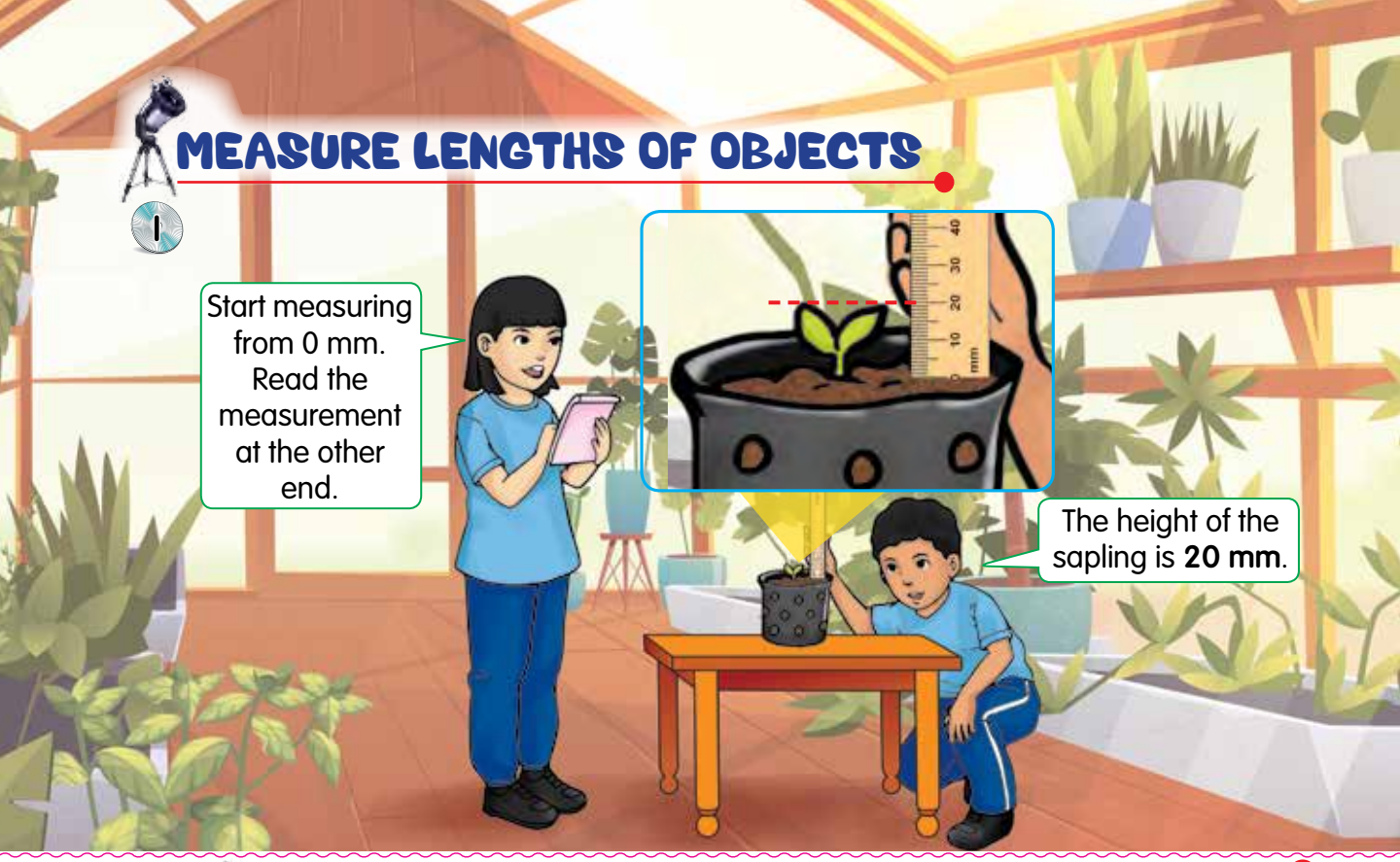
_____

TEACHER'S NOTES

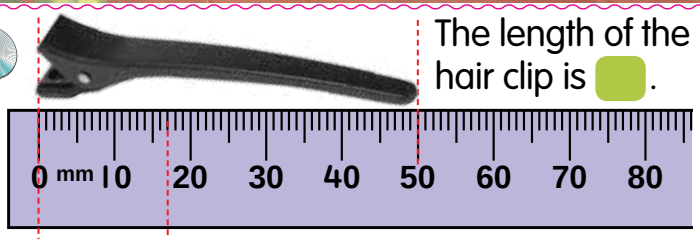
- Encourage pupils to explore the uses of mm and km in daily life.
- Visualise 1 km distance using simulation by showing the distance of a race track.
- Use Google Maps application to get the distance between two places.

MEASURE LENGTHS OF OBJECTS

1



2

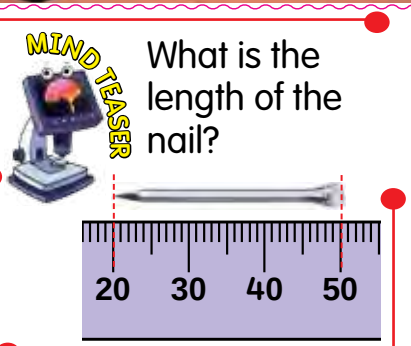


The length of the hair clip is ____.

The length of the paper clip is ____.

MIND TEASER

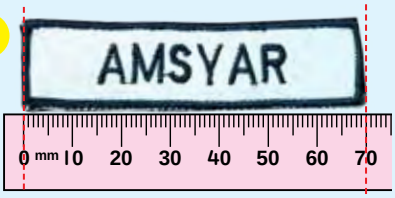
What is the length of the nail?



TEST YOURSELF

1 State the measurement of the objects.

a



length of the name tag

____ mm

b

width of the banknote

____ mm

2 Measure the length of these objects using a ruler.

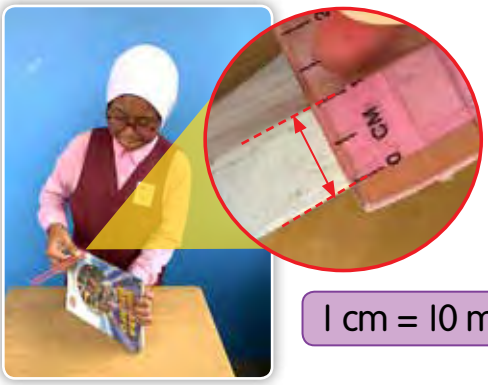
a envelope b key c RM10 banknote

TEACHER'S NOTES

- Conduct an activity of measuring objects around the classroom that involves the unit mm.
- Surf https://www.wikihow.com/Measure-Mm

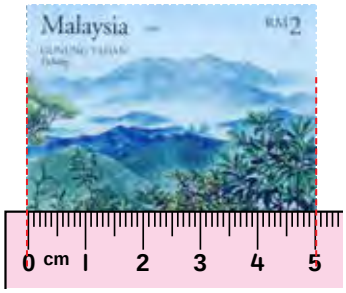
RELATIONSHIP BETWEEN CENTIMETRE AND MILLIMETRE

1



1 cm = 10 mm

2



5 cm = ____ **mm**

5 cm = 5 × 10

= 50 mm

5 cm = **50** **mm**

3

40 mm = ____ **cm**

40 mm = 40 ÷ 10

= 4 cm

40 mm = **4** **cm**

4

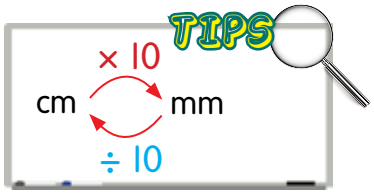
19 cm 7 mm = ____ **mm**

19 cm 7 mm = 190 mm + 7 mm

= 197 mm

19 cm 7 mm = **197** **mm**

TIPS



Convert 68 mm to cm and mm.

TEST YOURSELF

Complete these.

(a) 8 cm = ____ mm

(b) 120 mm = ____ cm

(c) 75 mm = ____ cm ____ mm

(d) 3 cm 4 mm = ____ mm

(e) 13 cm 8 mm = ____ mm

(f) 495 mm = ____ cm ____ mm

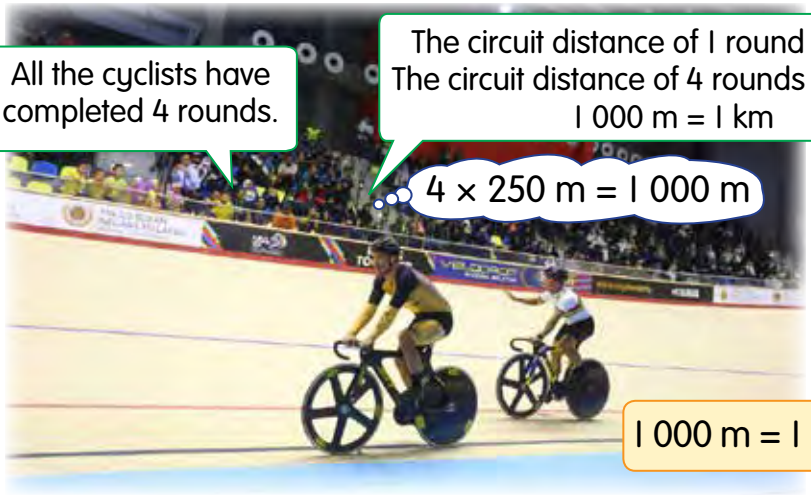
TEACHER'S NOTES

- Introduce other measuring tools to measure objects involving mm and cm.
- Surf https://www.unitconverters.net/length/mm-to-cm.htm.

5.1.2
5.1.3

RELATIONSHIP BETWEEN KILOMETRE AND METRE

1



2 3 km = ____ m

3 km = 3 × 1 000

= 3 000 m

3 km = **3 000** m

3 23 000 m = ____ km

$\frac{23\ 000}{1\ 000}$ km = 23 km

23 000 m = **23** km

4 6 km 743 m = ____ m

6 km 743 m = 6 000 m + 743 m

= 6 743 m

6 km 743 m = **6 743** m

5 40 025 m = ____ km ____ m

40 025 m = 40 000 m + 25 m

= 40 km + 25 m

= 40 km 25 m

40 025 m = **40** km **25** m

TIPS

× 1 000

km ⇄ m

÷ 1 000

Is 8 006 m the same as 80 km 6 m? Discuss.

TEST YOURSELF

Complete these.

a) 26 km = ____ m

b) 5 000 m = ____ km

c) 38 000 m = ____ km

d) 4 km 16 m = ____ m

e) 9 km ____ m = 9 025 m

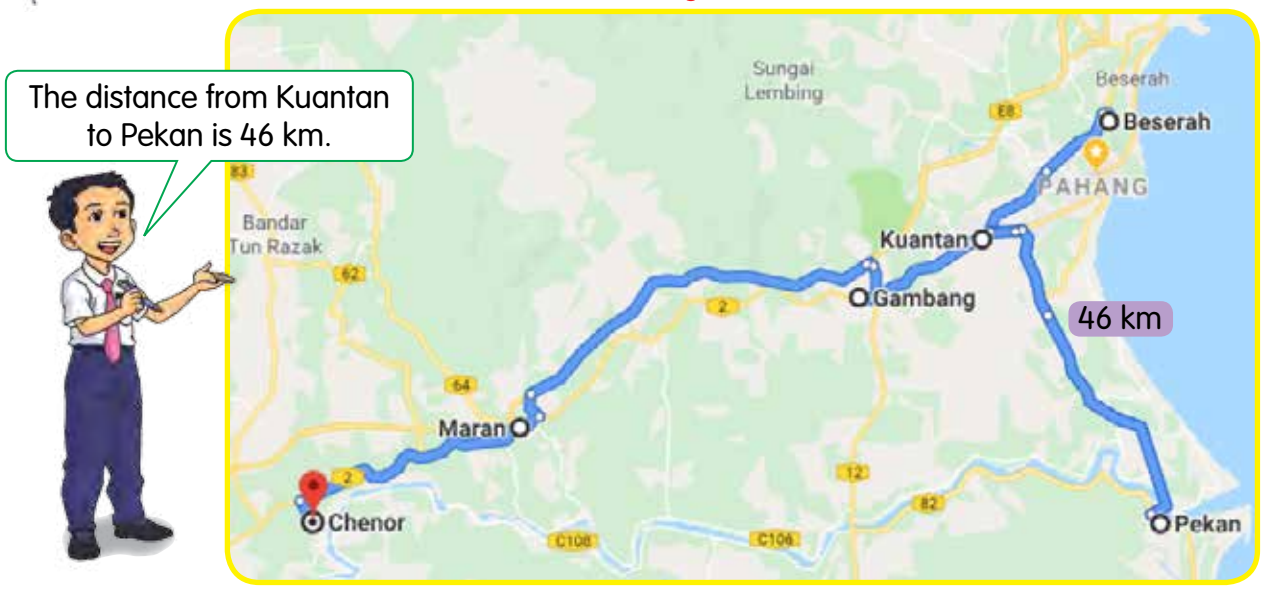
f) ____ km 17 m = 2 017 m

TEACHER'S NOTES

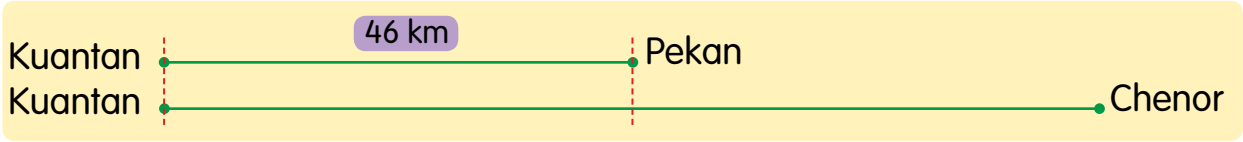
- Use daily situations such as running, swimming, races, cross-country, marathon, and motorsports events, and relate them with measurement of length.
- Surf https://www.sheppardsoftware.com/mathgames/menus/measurement.htm

5.1.2
5.1.3

ESTIMATION OF DISTANCE

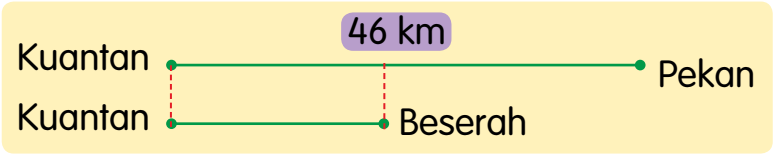


(a) What is the estimated distance from Kuantan to Chenor?



The estimated distance from **Kuantan** to **Chenor** is **about 2 times** the distance from Kuantan to Pekan.
The estimated distance from **Kuantan** to **Chenor** is **about 92 km**.

(b) State the estimated distance from Kuantan to Beserah.



The estimated distance from **Kuantan** to **Beserah** is **approximately half** the distance from Kuantan to Pekan.
The estimated distance from **Kuantan** to **Beserah** is **about 23 km**.

TEST YOURSELF

Based on the map above, estimate the distance between these cities.

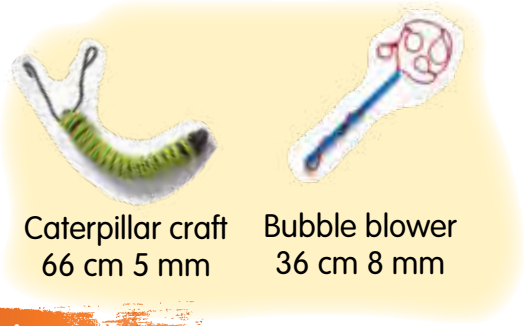
(a) Kuantan and Gambang

(b) Kuantan and Maran

TEACHER'S NOTES

- Use location map of pupils' homes to estimate the distance from their houses to the school, friend's house, library, and others.
- Ask pupils to check the answers using Google Maps.

ADDITION OF LENGTH



1 What is the total length of the wire, in mm, that is used to make a caterpillar craft and a bubble blower?

66 cm 5 mm + 36 cm 8 mm = ____ **mm**

Method 1

cm	mm
1	
66	5
+ 36	8
102	13

102 cm = 102 × 10
= 1 020 mm

102 cm 13 mm
= 1 020 mm + 13 mm
= 1 033 mm

Method 2

66 cm 5 mm = 660 mm + 5 mm
= 665 mm

36 cm 8 mm = 360 mm + 8 mm
= 368 mm

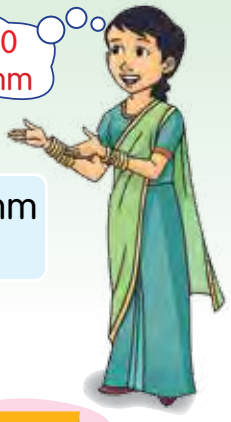
1 1	
665	mm
+ 368	mm
1 033	mm

66 cm 5 mm + 36 cm 8 mm = **1 033 mm**

The total length of the wire is **1 033 mm**.

2 14 cm 9 mm + 57 cm + 16 cm 8 mm = ____ **mm**

cm	mm
1	
14	9
57	0
+ 16	8
87	17
+ 1	− 10
88	7



88 cm 7 mm = 880 mm + 7 mm
= 887 mm

14 cm 9 mm + 57 cm + 16 cm 8 mm = **887 mm**

Discuss the answer in cm and mm.

	1 7 cm		1 6 mm
			49 mm
+	25 cm		3 mm
	32 cm		58 mm

TEACHER'S NOTES

- Surf https://www.math-only-math.com/worksheet-on-addition-in-metres-and-centimetres.html
- Conduct a simulation of adding length of measurements using objects around pupils.

3 What is the distance from Kampung Enggor to Parit through Manong?

29 km 800 m + 19 km 600 m = ____ km ____ m

	km	m
	1	
	29	800
+	19	600
	48	1 400
+	1	− 1 000
	49	400

29 km 800 m + 19 km 600 m = **49** km **400** m

The distance from Kampung Enggor to Parit through Manong is **49 km 400 m**.

4 3 km 670 m + 2 km 124 m + 1 km 780 m = ____ m

	km	m
		1
	3	670
	2	124
+	1	780
	6	1 574
+	1	− 1 000
	7	574

7 km 574 m = 7 000 m + 574 m
= 7 574 m

3 km 670 m + 2 km 124 m + 1 km 780 m = **7 574** m

TEST YOURSELF

1 Calculate.

a

cm	mm
	7
+ 47	2

b

cm	mm
25	3
+ 6	5

c

km	m
15	650
+ 8	349

2 Add.

a 46 cm + 8 cm 3 mm + 7 cm 9 mm = ____ cm ____ mm

b 225 m + 7 km 845 m + 3 km 605 m = ____ km ____ m

c 36 km 24 m + 7 km 8 m + 14 km 935 m = ____ m

TEACHER'S NOTES

- Surf https://www.splashmath.com/measurement-games
- Surf https://www.math-only-math.com/addition-of-length.html
- Guide pupils to sort measurement units correctly before adding the respective units.

SUBTRACTION OF LENGTH

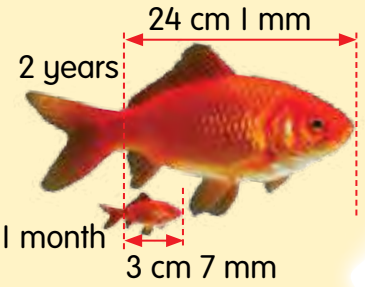
1 What is the difference in body length, in mm, between a 2-year old and a 1-month old goldfish?

24 cm 1 mm – 3 cm 7 mm = ☐ **mm**

24 cm 1 mm
= 240 mm + 1 mm
= 241 mm

3 cm 7 mm
= 30 mm + 7 mm
= 37 mm

Changes in the body length of a goldfish



Source: https://www.myaquariumclub.com/stunting-do-fish-like-goldfish-grow-only-to-the-size-of-their-tank-11606.html

```
   3 11
   2 4  1 mm
–    3  7 mm
   ------------
   2 0  4 mm
   ------------
```

24 cm 1 mm – 3 cm 7 mm = **204** **mm**

The difference in body length between a 2-year old and a 1-month old goldfish is **204 mm**.

2 71 cm 2 mm – 47 cm 6 mm – 95 mm = ☐ **cm** ☐ **mm**

cm	mm	cm	mm
10	12	1 13	
6 ~~0~~	~~2~~	~~2 3~~	6
~~7 1~~			
– 4 7	6	– 9	5
2 3	6	1 4	1

95 mm = 90 mm + 5 mm
= 9 cm 5 mm

71 cm 2 mm – 47 cm 6 mm – 95 mm = **14** **cm** **1** **mm**

FACTS AT A GLANCE

The **inch**, **feet**, **yard**, and **mile** are still used to measure length.

TEACHER'S NOTES

- Surf https://www.onlinemathlearning.com/subtracting-lengths.html
- Based on the Facts at a Glance given, pupils conduct a discussion regarding the units of inch, feet, yard, and mile.

3

Penang Bridge
13 km 500 m

Sultan Abdul Halim
Muadzam Shah Bridge
24 km

What is the difference in length of both bridges based on the information given?

24 km – 13 km 500 m = ☐ **km** ☐ **m**

	km	m
	~~2~~ 3 ~~4~~	~~0~~ 1 000 ~~000~~
–	13	500
	10	500

SCAN THIS

24 km – 13 km 500 m = **10** **km** **500** **m**

The difference in length of both bridges is **10 km 500 m**.

4 18 km – 7 km 600 m – 4 km 792 m = ☐ **km** ☐ **m**

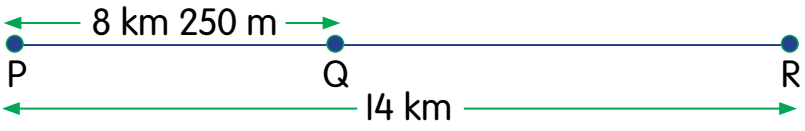
	km	m
	~~1~~ 7 ~~8~~	~~0~~ 1000 ~~000~~
–	7	600
	10	400

	km	m
	~~1~~ 9 ~~10~~	~~3~~ 13 9 ~~0~~ 3 10 10 ~~400~~
–	4	792
	5	608

SCAN THIS

18 km – 7 km 600 m – 4 km 792 m = **5** **km** **608** **m**

MIND TEASER



The distance between city Q and city R is 5 750 m. Prove it.

TEST YOURSELF

Subtract.

a 18 cm 4 mm – 6 cm 8 mm = ☐ mm

b 63 cm 7 mm – 34 cm 9 mm – 27 cm 2 mm = ☐ cm ☐ mm

c 89 km 507 m – 75 km 648 m = ☐ km ☐ m

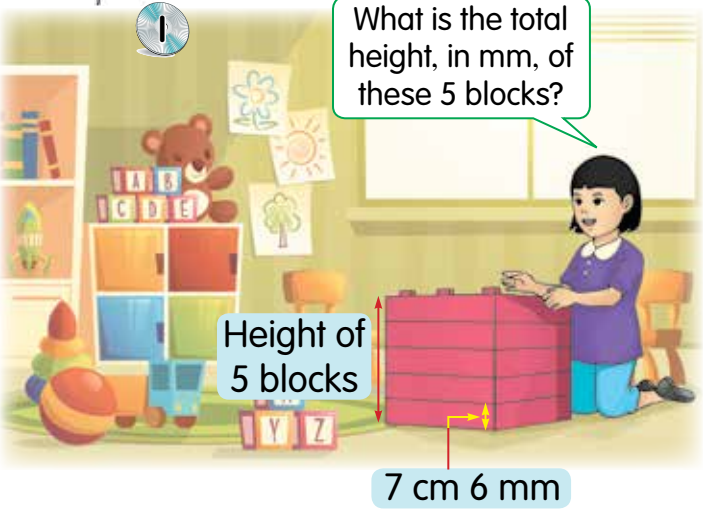
d 19 km – 10 km 450 m – 2 km 890 m = ☐ m

TEACHER'S NOTES

- Surf https://www.onlinemathlearning.com/subtracting-lengths.html
- Explain the solution method by converting measurements involving km and m to the required unit before performing the operation.

MULTIPLICATION OF LENGTH

1



5 × 7 cm 6 mm = ☐ mm

7 cm 6 mm = 7 × 10 mm + 6 mm
= 70 mm + 6 mm
= 76 mm

$$\begin{array}{r} {\scriptstyle 3} \\ 7\ 6\ \text{mm} \\ \times\quad 5 \\ \hline 3\ 8\ 0\ \text{mm} \end{array}$$

5 × 7 cm 6 mm = **380** mm

The total height of the 5 blocks is **380 mm**.

2 7 × 14 cm 9 mm = ☐ cm ☐ mm

cm	mm	
2		
14	9	
×	7	
1		
98	63	
+ 6	− 60	60 mm = 6 cm
104	3	

7 × 14 cm 9 mm = **104** cm **3** mm

3 9 × 2 km 480 m
= ☐ km ☐ m

km	m	
	7	
2	480	
×	9	
1		
18	4 320	
+ 4	− 4 000	4 000 m = 4 km
22	320	

9 × 2 km 480 m
= **22** km **320** m

TEST YOURSELF

1 Multiply.

a) 6 × 4 cm 7 mm = ☐ cm ☐ mm

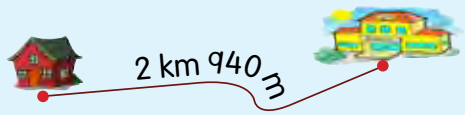
b) 5 × 904 m = ☐ km ☐ m

c) 2 × 13 cm 8 mm = ☐ cm ☐ mm

d) 5 × 679 m = ☐ km ☐ m

e) 8 × 35 km 125 m = ☐ km

2



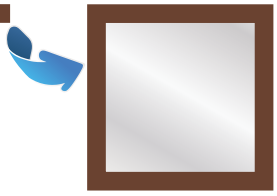
Calculate Navin's to and fro total travelling distance, in km and m, from his home to school.

TEACHER'S NOTES

- Practise multiplying measurements of length, with and without conversion of units.
- Start the lesson by multiplying without conversion of units.
- Prepare sets of two questions with the same answer. After pupils have solved the questions, they find a partner who has the same answer.

DIVISION OF LENGTH

1 120 cm 8 mm of wood is used to make a picture frame.



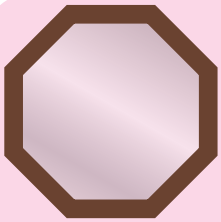
What is the length of one side of a square picture frame?

120 cm 8 mm ÷ 4 = ☐ **cm** ☐ **mm**

$$\begin{array}{r} 30\text{ cm}\quad 2\text{ mm} \\ 4\overline{)\,120\text{ cm}\quad 8\text{ mm}} \\ -12\phantom{\text{ cm}}\quad -8 \\ \hline 00\quad\;\; 0 \\ -\;\;0 \\ \hline 0 \end{array}$$

120 cm 8 mm ÷ 4 = **30** **cm** **2** **mm**

The length of one side of a square picture frame is **30 cm 2 mm.**



What is the length of one side of a regular octagonal picture frame, as shown, if the same total length of wood is used?

2 60 cm 2 mm ÷ 7 = ☐ **mm**

$$\begin{array}{r} 8\text{ cm}\quad 6\text{ mm} \\ 7\overline{)\,60\text{ cm}\quad 2\text{ mm}} \\ -56\quad +40 \\ \hline 4\quad\;\; 42 \\ -42 \\ \hline 0 \end{array}$$

4 cm = 40 mm

8 cm 6 mm = 80 mm + 6 mm
= 86 mm

60 cm 2 mm ÷ 7 = **86** **mm**

TEACHER'S NOTES

- Remind pupils to give their answers according to the required unit.
- Surf https://www.onlinemathlearning.com/dividing-lengths.html

3 12 km ÷ 5 = ☐ km ☐ m

2 km = 2 000 m

	2 km	400 m
5)	12 km	0 m
	− 10	+ 2 000
	2	2 000
		− 20
		00
		− 0
		00
		− 0
		0

12 km ÷ 5 = **2** km **400** m

4 7 km 280 m ÷ 4 = ☐ km ☐ m

3 km = 3 000 m

	1 km	820 m
4)	7 km	280 m
	− 4	+ 3 000
	3	3 280
		− 32
		08
		− 8
		00
		− 0
		0

7 km 280 m ÷ 4 = **1** km **820** m

TEST YOURSELF

1 Divide.

(a) 245 mm ÷ 7 = ☐ cm ☐ mm

(b) 67 km ÷ 5 = ☐ km ☐ m

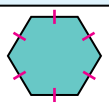
(c) 20 cm 4 mm ÷ 6 = ☐ cm ☐ mm

(d) 7 km 48 m ÷ 2 = ☐ km ☐ m

(e) 53 cm 6 mm ÷ 4 = ☐ mm

(f) 89 km 250 m ÷ 3 = ☐ km ☐ m

2 Complete the table.

Shape		
Total length of wire used	86 cm 4 mm	73 cm 2 mm
Length of one side of shape	☐ cm ☐ mm	☐ cm ☐ mm

TEACHER'S NOTES

- Surf https://braingenie.ck12.org/skills/102021
- Conduct a quiz involving division of units of length in groups.

ADDITION AND SUBTRACTION OF MASS

1 What is the mass of the flour, in g, to make biscuits?

4 kg + 1 kg – 130 g = ☐ g

		g
		9
		4 10 10
4 kg	→	5 0 0 0 g
+ 1 kg		– 1 3 0 g
5 kg		4 8 7 0 g

4 kg + 1 kg – 130 g = **4 870** g

The mass of the flour to make biscuits is **4 870 g**.

2 8 kg 20 g – 630 g + 4 kg = ☐ kg ☐ g

		kg	g
			9
			0 10 12
		11	1 0 2 0
8 kg	20 g	12 kg	0 2 0 g
+ 4 kg		–	6 3 0 g
12 kg	20 g	11 kg	3 9 0 g

8 kg 20 g – 630 g + 4 kg = **11** kg **390** g

3 180 g + 67 kg 50 g – 490 g = ☐ g

Method 1

kg	g
	1
	1 8 0
+ 6 7	0 5 0
6 7	2 3 0

kg	g
	11
	0 1 13
	6 1 2 3 0
6 7	2 3 0
–	4 9 0
6 6	7 4 0

66 kg 740 g = 66 000 g + 740 g
= 66 740 g

Method 2

	1
	1 8 0 g
+ 6 7	0 5 0 g
6 7	2 3 0 g

	11
6	1 13
6 7	2 3 0 g
–	4 9 0 g
6 6	7 4 0 g

180 g + 67 kg 50 g – 490 g = **66 740** g

TEACHER'S NOTES

- Add and subtract units of mass based on situations and through simulation activity.
- Explain that adding and subtracting mass is the same as adding and subtracting whole numbers.
- Emphasise on how to write 67 kg 50 g in unit of g, e.g. 67 050 g.

4 12 kg 740 g + 5 kg 950 g – 3 885 g = ☐ g

kg	g
12	740
+ 5	950
17	1 690
+ 1	– 1 000
18	690

18 kg 690 g = 18 690 g

7 16 8 10

~~18~~ ~~6~~ ~~9~~ ~~10~~ g

– 3 885 g

14 805 g

12 kg 740 g + 5 kg 950 g – 3 885 g = **14 805 g**

2 kg + 5 kg – 7 g = 0.
Is the number sentence correct? Discuss.

FACTS AT A GLANCE

Pound (lb), ounce (oz), catty, and tael are also used to measure mass of an object.

TEST YOURSELF

1 Solve these.

a 23 kg + 18 kg – 6 940 g = ☐ g

b 9 010 g – 720 g + 5 kg = ☐ kg ☐ g

c 8 kg 5 g + 3 kg 670 g – 2 490 g = ☐ g

d 825 g + 13 kg 718 g – 4 960 g = ☐ kg ☐ g

e 12 kg 218 g – 620 g + 3 kg 410 g = ☐ kg ☐ g

f 3 kg 50 g – 265 g + 1 kg 700 g = ☐ g

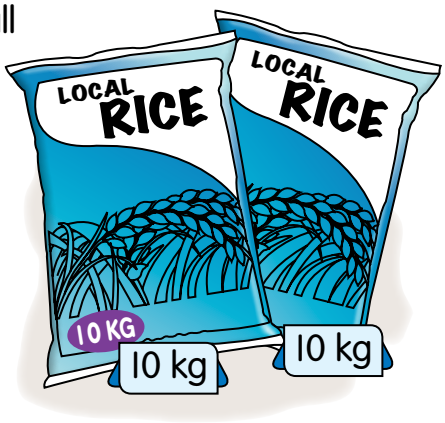
2 Subtract 18 kg 565 g from the sum of 72 kg 310 g and 80 g.

TEACHER'S NOTES

- Pay attention to the regrouping method from g to kg and vice versa.
- Emphasise that when the value is more than 1 000 g, carry out conversion of units.

MULTIPLICATION AND DIVISION OF MASS

1 Father repackaged 2 packets of 10 kg rice into 8 small packets. What is the mass, in g, of each small packet?



$2 \times 10\ \text{kg} \div 8 =$ ____ **g**

10 kg = 10 000 g

$$\begin{array}{r} 10\,000\,\text{g} \\ \times \quad 2 \\ \hline 20\,000\,\text{g} \end{array}$$

$$\begin{array}{r} 2\,500\,\text{g} \\ 8\overline{)\,20\,000\,\text{g}} \\ -16 \\ \hline 40 \\ -40 \\ \hline 00 \\ -\ 0 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

$2 \times 10\ \text{kg} \div 8 =$ **2 500 g**

The mass of each small packet is **2 500 g**.

2 $9 \times 1\,600\ \text{g} \div 4 =$ ____ **kg** ____ **g**

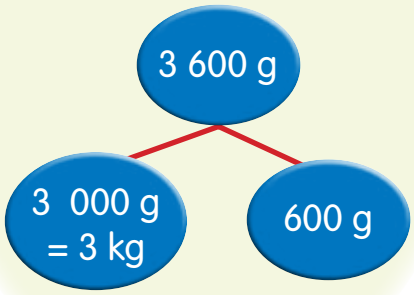
Method 1

$$\begin{array}{r} {\scriptstyle 5} \\ 1\,600\,\text{g} \\ \times \quad 9 \\ \hline 14\,400\,\text{g} \end{array}$$

$$\begin{array}{r} 3\,600\,\text{g} \\ 4\overline{)\,14\,400\,\text{g}} \\ -12 \\ \hline 24 \\ -24 \\ \hline 00 \\ -\ 0 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

Method 2

$$9 \times \overset{400}{\cancel{1\,600}}\ \text{g} \div \cancel{4}\ 1 = 3\,600\ \text{g}$$



3 600 g = 3 000 g + 600 g
= 3 kg 600 g

$9 \times 1\,600\ \text{g} \div 4 =$ **3 kg 600 g**

TEACHER'S NOTES
- Guide pupils on multiplying and dividing units of mass through simulation activity.

3 18 kg 30 g ÷ 5 × 6 = ____ kg ____ g

```
      3 kg   0 6 0 6 g
5 ) 18 kg      30 g
   - 15
      3
    + 3 000
      3 0 3 0
    - 0
      3 0
    - 3 0
        0 3
      -   0
          3 0
        - 3 0
            0
```

kg	g
	3
3	6 0 6
×	6
18	3 6 3 6
+ 3	− 3 0 0 0
21	6 3 6

18 kg 30 g ÷ 5 × 3 = ____ g
Discuss.

18 kg 30 g ÷ 5 × 6 = **21** kg **636** g

4 7 kg 14 g × 3 ÷ 9 = ____ g

Joon

```
    7 1 4 0 g
  ×         3
  ---------------
    2 1 4 2 0 g
```

```
          2 3 8 0 g
9 ) 21 4 2 0 g
    - 18
      3 4
    - 2 7
        7 2
      - 7 2
          0 0
        -   0
            0
```

Is Joon's answer correct? Discuss.

FACTS AT A GLANCE

The mass of a whale
25 up to 30 metric tones
(25 000 up to 30 000 kg)

Tablet medicine
500 milligram

TEST YOURSELF

Solve these.

(a) 931 g ÷ 7 × 9 = ____ g

(b) 9 kg 630 g ÷ 3 × 4 = ____ kg ____ g

(c) 5 × 3 kg 648 g ÷ 8 = ____ kg ____ g

(d) 13 kg 56 g ÷ 2 × 6 = ____ kg ____ g

(e) 3 × 2 kg ÷ 8 = ____ g

(f) 7 × 2 480 g ÷ 5 = ____ kg ____ g

TEACHER'S NOTES

- Expose various strategies such as the elimination method to simplify calculation.
- Enhance pupils' understanding on how to write mass in the required unit.
  E.g. 10 kg 65 g is written as 10 065 g in unit of g.

ADDITION AND SUBTRACTION OF VOLUME OF LIQUID

1

After mixing paint and water, Armund's father used 500 mℓ of the mixture to paint the walls. What is the remaining volume, in mℓ, of the mixture?

5 ℓ + 450 mℓ – 500 mℓ = ☐ mℓ

5 ℓ + 450 mℓ = 5 ℓ 450 mℓ
= 5 000 mℓ + 450 mℓ
= 5 450 mℓ

	4	14	
	~~5~~	~~4~~	5 0 mℓ
–		5 0 0	mℓ
	4	9 5 0	mℓ

5 ℓ + 450 mℓ – 500 mℓ = **4 950** mℓ

The remaining volume of the mixture is **4 950 mℓ**.

2 4 ℓ 80 mℓ – 360 mℓ + 7 ℓ = ☐ ℓ ☐ mℓ

	3	1080	
	~~4~~ ℓ	~~0~~ 8 0	mℓ
–		3 6 0	mℓ
	3 ℓ	7 2 0	mℓ

	3 ℓ	7 2 0	mℓ
+	7 ℓ	0 0 0	mℓ
	10 ℓ	7 2 0	mℓ

4 ℓ 80 mℓ – 360 mℓ + 7 ℓ = **10** ℓ **720** mℓ

3 8 ℓ 320 mℓ + 4 ℓ 905 mℓ – 11 700 mℓ = ☐ ℓ ☐ mℓ

	ℓ	mℓ
	8	3 2 0
+	4	9 0 5
	12	1 2 2 5
+	1	– 1 0 0 0
	13	2 2 5

	ℓ	mℓ
	2	1 2 2 5
	~~13~~	~~2 2~~ 5
–	11	7 0 0
	1	5 2 5

8 ℓ 320 mℓ + 4 ℓ 905 mℓ – 11 700 mℓ = **1** ℓ **525** mℓ

TEACHER'S NOTES

- Conduct a simulation activity using liquid and measuring cylinders to describe the concept of addition and subtraction of volume of liquid.
- Provide a situation involving addition and subtraction of volume of liquid. In groups, ask pupils to create a number sentence.

4 $6\ \ell - 1\ \ell\ 300\ m\ell + 590\ m\ell =$ ____ $m\ell$

ℓ	$m\ell$
5	1000
~~6~~	~~000~~
− 1	300
4	700

ℓ	$m\ell$
4	700
+	590
4	1290
+ 1	− 1000
5	290

$5\ \ell\ 290\ m\ell = 5\ 000\ m\ell + 290\ m\ell$
$= 5\ 290\ m\ell$

$6\ \ell - 1\ \ell\ 300\ m\ell + 590\ m\ell =$ **5 290** $m\ell$

MIND TEASER

$3\ \ell\ 5\ m\ell + 7\ \ell -$ **R** $m\ell = 9\ 006\ m\ell$
What is the value of ***R***?

FACTS AT A GLANCE

The units **gallon (gal)**, **quart (qt)**, and **pint (pt)** are still used to state the volume of liquid.


1 quart

quart

pint

$\frac{1}{2}$ pint


4 gallons


5 gallons

TEST YOURSELF

Solve these.

a $4\ \ell + 83\ m\ell - 765\ m\ell =$ ____ $m\ell$

b $8\ 070\ m\ell - 4\ 210\ m\ell + 8\ \ell =$ ____ ℓ ____ $m\ell$

c $5\ \ell\ 620\ m\ell + 2\ \ell\ 438\ m\ell - 3\ 790\ m\ell =$ ____ ℓ ____ $m\ell$

d $7\ \ell\ \ 30\ m\ell - 1\ \ell\ 800\ m\ell + 6\ 162\ m\ell =$ ____ $m\ell$

e $6\ 259\ m\ell + 2\ \ell\ \ 85\ m\ell - 3\ 470\ m\ell =$ ____ $m\ell$

f $2\ 413\ m\ell + 6\ \ell\ \ 870\ m\ell - 5\ 090\ m\ell =$ ____ ℓ ____ $m\ell$

TEACHER'S NOTES
- In groups, conduct a bingo game or quiz.

MULTIPLICATION AND DIVISION OF VOLUME OF LIQUID

1 What is the volume of juice, in mℓ, for each person?

$3 \times 1\ \ell \div 8 =$ ____ mℓ

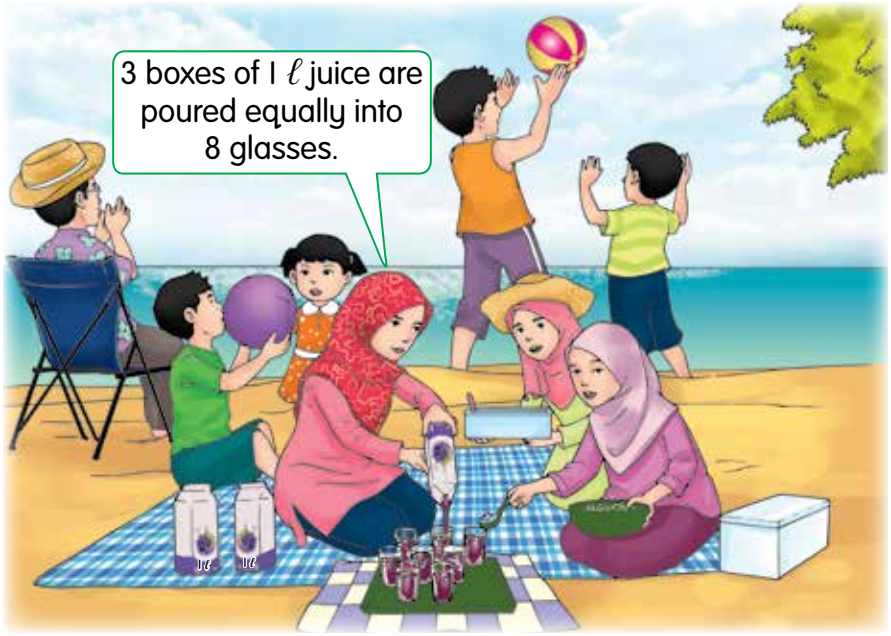
$3 \times 1\ \ell = 3\ \ell$

$3\ \ell = 3\,000$ mℓ

$$\begin{array}{r} 375\ \text{m}\ell \\ 8\overline{)3\,000\ \text{m}\ell} \\ -24 \\ \hline 60 \\ -56 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

$3 \times 1\ \ell \div 8 =$ **375 mℓ**

Each person gets **375 mℓ** of juice.



2 $18\ \ell \div 4 \times 7 =$ ____ mℓ

Method 1

$18\ \ell = 18 \times 1\,000$
$= 18\,000$ mℓ

$$\begin{array}{r} 4\,500\ \text{m}\ell \\ 4\overline{)18\,000\ \text{m}\ell} \\ -16 \\ \hline 20 \\ -20 \\ \hline 00 \\ -\ 0 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 3} \\ 4\,500\ \text{m}\ell \\ \times \qquad 7 \\ \hline 31\,500\ \text{m}\ell \end{array}$$

Method 2

$$\frac{18\ \ell}{4} \times 7$$

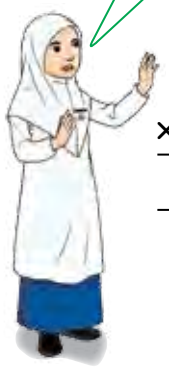
$$= \frac{\overset{4\,500}{\cancel{18\,000}\ \text{m}\ell}}{\underset{1}{\cancel{4}}} \times 7$$

$= 31\,500$ mℓ

$18\ \ell \div 4 \times 7 =$ **31 500 mℓ**

TEACHER'S NOTES
- Conduct a simulation to enhance pupils' understanding.

3 $7 \times 8\ \ell\ 25\ m\ell \div 3 =$ ☐ ℓ ☐ $m\ell$



$$\begin{array}{r} {}^{1}8\ {}^{3}025\ m\ell \\ \times \qquad 7 \\ \hline 56\ 175\ m\ell \end{array}$$

$$\begin{array}{r} 18\ 725\ m\ell \\ 3\overline{)\,56\ 175\ m\ell} \\ -3\downarrow \\ \hline 26 \\ -24 \\ \hline 21 \\ -21 \\ \hline 07 \\ -\ 6 \\ \hline 15 \\ -15 \\ \hline 0 \end{array}$$

18 725 mℓ
= 18 000 mℓ + 725 mℓ
= 18 ℓ 725 mℓ

$7 \times 8\ \ell\ 25\ m\ell \div 3 =$ **18** ℓ **725** $m\ell$

4 $56\ \ell\ 20\ m\ell \div 5 \times 4 =$ ☐ ℓ ☐ $m\ell$

Gana

$$\begin{array}{r} 11\ \ell\ \ 24\ m\ell \\ 5\overline{)\,56\ \ell\ \ 20\ m\ell} \\ -5\downarrow \\ \hline 06 \\ -\ 5 \\ \hline 1 \\ \qquad 12 \\ \qquad -10 \\ \hline \qquad 20 \\ \qquad -20 \\ \hline \qquad 0 \end{array}$$

ℓ	mℓ
11	24
×	4
44	96

Help Gana to identify his mistake.

TEST YOURSELF

Solve these.

(a) 1 800 mℓ ÷ 2 × 5 = ☐ ℓ

(b) 48 ℓ ÷ 3 × 4 = ☐ mℓ

(c) 9 × 2 ℓ 50 mℓ ÷ 6 = ☐ ℓ ☐ mℓ

(d) 8 × 4 ℓ 5 mℓ ÷ 9 = ☐ mℓ

(e) 10 248 mℓ ÷ 4 × 7 = ☐ ℓ ☐ mℓ

(f) 33 ℓ 72 mℓ ÷ 8 × 3 = ☐ mℓ

TEACHER'S NOTES

- Conduct quizzes and cross-number puzzles to enhance pupils' understanding.

SOLVE THE PROBLEMS

Circuit	Length of wire used
A	28 cm 7 mm
B	29 cm 8 mm
C	32 cm 6 mm

1 Asri built 3 types of circuits. What is the total length of wire used for the three circuits?

Understand the problem

Length of circuit wires:
A: 28 cm 7 mm, B: 29 cm 8 mm and C: 32 cm 6 mm.
Calculate the total length of wire.

Plan the strategy

Add
28 cm 7 mm + 29 cm 8 mm + 32 cm 6 mm = ☐

Solve

cm	mm
1	
28	7
29	8
+ 32	6
89	21
+ 2	− 20
91	1

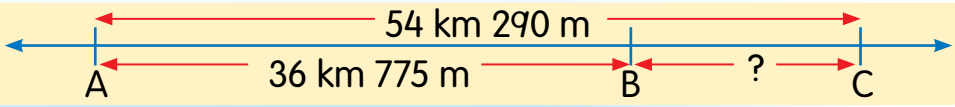
Check

cm	mm	cm	mm
8 10		4 17	
~~9 0~~	11	~~5 7~~	15
~~9 1~~	~~1~~	~~5 8~~	~~5~~
− 32	6	− 29	8
58	5	28	7

28 cm 7 mm + 29 cm 8 mm + 32 cm 6 mm = **91 cm 1 mm**

The total length of wire is **91 cm 1 mm**.

2 A treasure hunt competition starts from city A to city C through city B. Calculate the distance from city B to city C.



Solve

54 km 290 m − 36 km 775 m = ☐

~~4 13~~	8 10
~~5 3~~	~~12 9 0~~
~~5 4~~ km	~~2 9 0~~ m
− 36 km	775 m
17 km	515 m

Check

1	1 1
17 km	515 m
+ 36 km	775 m
53 km	1290 m
+ 1 km	− 1000 m
54 km	290 m

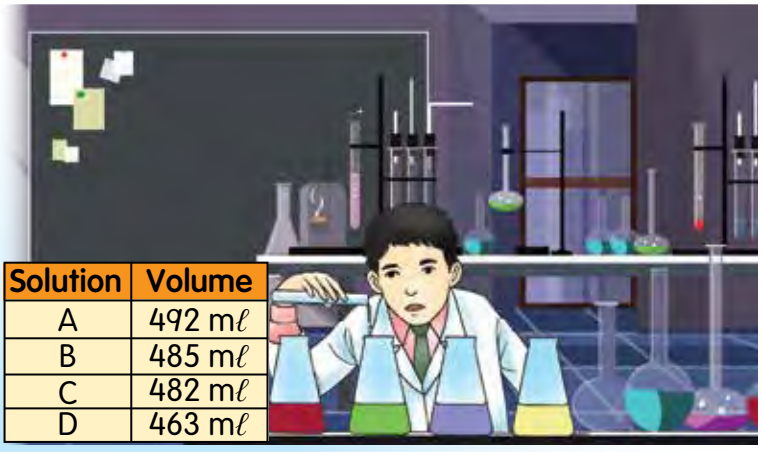
54 km 290 m − 36 km 775 m = **17 km 515 m**

Distance from city B to city C is **17 km 515 m**.

TEACHER'S NOTES

- Guide pupils to underline information or keywords for the problems given.
- Vary the problem solving strategies such as by drawing a picture, simulation, and making a model.

3 Professor Faizal successfully created a herbal drink by adding three types of herbal solutions with a total volume of 1 430 mℓ. Based on the table, which solutions are used?



Solution	Volume
A	492 mℓ
B	485 mℓ
C	482 mℓ
D	463 mℓ

Solve Trial and error method

1 430 mℓ = ____ mℓ + ____ mℓ + ____ mℓ

- Look at the ones value in 1 430. The ones value is 0.
- The sum of the three numbers must be a multiple of 10.

First trial

- The sum of the ones values 2, 5 and 3 in 492 mℓ, 485 mℓ and 463 mℓ respectively is 10.

492 mℓ + 485 mℓ + 463 mℓ = 1 440 mℓ
(the total volume of **solution A, B and D is not equal to 1 430 mℓ**)

Second trial

- The sum of the ones value 5, 2 and 3 in 485 mℓ, 482 mℓ and 463 mℓ respectively is 10.

485 mℓ + 482 mℓ + 463 mℓ = 1 430 mℓ
(the total volume of **solution B, C and D is equal to 1 430 mℓ**)

The answer for the **second trial** is **correct**.

Check

$$\begin{array}{r} {\scriptstyle 1} \\ 485\ \text{m}\ell \\ +\ 482\ \text{m}\ell \\ \hline 967\ \text{m}\ell \end{array} \qquad \begin{array}{r} {\scriptstyle 1\ 1} \\ 967\ \text{m}\ell \\ +\ 463\ \text{m}\ell \\ \hline 1\,430\ \text{m}\ell \end{array}$$

The solutions used are **solution B, C and D**.

TEACHER'S NOTES
- Guide pupils to solve problems using the trial and error method.

4 The calendar shows the date of items delivery by Mr Arul from the factory to Maju Shop. He starts delivering items on 4 April 2020. The two-way distance from the factory to Maju Shop is 86 km 900 m.

April 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	(4)
5	6	7	(8)	9	10	11
(12)	13	14	15	(16)	17	18
19	(20)	21	22	23	(24)	25
26	27	(28)	29	30		

a What is the one-way distance from the factory to Maju Shop?
b What is the total delivery distance travelled by Mr Arul?

Solve

a One-way distance from the factory to Maju Shop:

86 km 900 m ÷ 2 = ____

$$\begin{array}{r} 43\text{ km}\quad 450\text{ m} \\ 2\overline{)\,86\text{ km}\quad 900\text{ m}} \\ -8\downarrow\quad\quad -8\downarrow\quad\downarrow \\ \hline 06\quad\quad 10\quad\quad 00 \\ -\ 6\quad\quad -\ 10\quad\quad -\ 0 \\ \hline 0\quad\quad 0\quad\quad 0 \end{array}$$

86 km 900 m ÷ 2 = **43 km 450 m**

The one-way distance from the factory to Maju Shop is **43 km 450 m**.

b Mr Arul's delivery date: 4, 8, 12, 16, 20, 24 and 28 April (7 days)

Total delivery distance: 7 × 86 km 900 m = ____

$$\begin{array}{rrr} & \text{km} & \text{m} \\ & {\scriptstyle 4} & \\ & 86 & 900 \\ \times & & 7 \\ \hline & 602 & 6300 \\ + & 6 & -\ 6000 \\ \hline & 608 & 300 \end{array}$$

7 × 86 km 900 m = **608 km 300 m**

The total delivery distance travelled by Mr Arul is **608 km 300 m**.

• Surf https://www.khanacademy.org/math/cc-third-grade-math/cc-third-grade-measurement/cc-third-grade-mass-volume/e/measure-mass

TEST YOURSELF

Solve the problems.

1. Puan Hamidah used pink, white, and black ribbons to decorate her child's birthday gift. The length of the ribbons are as shown:

Ribbon colour	Length
Black	36 cm 3 mm
Pink	67 cm 2 mm
White	268 mm

What is the total length of ribbons, in mm, used?

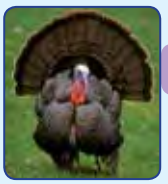
2. Mr Kimbua undergoes a running training of 3 km 260 m daily. Calculate his running distance in a week.

3. Based on the information in the table, what is the length of the Pahang River?

Name of river	Length
Pahang River	88 km less than Rajang River
Rajang River	323 km more than Kelantan River
Kelantan River	240 km

4. The total mass of Maniam, Norzi, and Ong is 150 kg. Norzi's mass is 35 kg 200 g. Ong's mass is 950 g more than Norzi's. What is Maniam's mass?

5. Calculate the total mass of the turkey and the chicken.



4 kg 600 g

2 kg 100 g less than the turkey's mass

6. The mass of 5 equal steel balls is 8 kg. Calculate the mass, in kg and g, of 4 steel balls.

7. The volume of water in container P is 395 mℓ less than container Q.

The volume of water in container Q is 1 ℓ 70 mℓ.

a. Based on the information above, calculate the total volume of water in containers P and Q.

b. The water in container Q is poured equally into 2 cups. What is the volume of water in each cup?

TEACHER'S NOTES

- Provide more problem solving questions involving daily life situations.
- Vary the questions and methods such as working backwards, drawing diagrams, and logical reasoning.

MIND RIDDLE

MEASUREMENT ADVENTURE

Tools/ Materials

Question cards, A4/display papers (to do the solution and jot down the answers), and pens.

How to conduct the activity

Teacher prepares a set of questions for each station.

Divide pupils into five groups.

Teacher blows the whistle and each group answers their own questions.

After 3 minutes, teacher blows the whistle again. Each group moves clockwise to the next station and answers the questions.

Each group goes back to their respective station after they have finished answering questions at four other stations.

Teacher checks the answers and calculates the scores. The group with the highest score wins.

SCAN THIS

TEACHER'S NOTES

- Prepare a set of questions for every station. The number of questions can be added or reduced based on pupils' abilities.

MIND CHALLENGE

1 Write "mm" or "km".

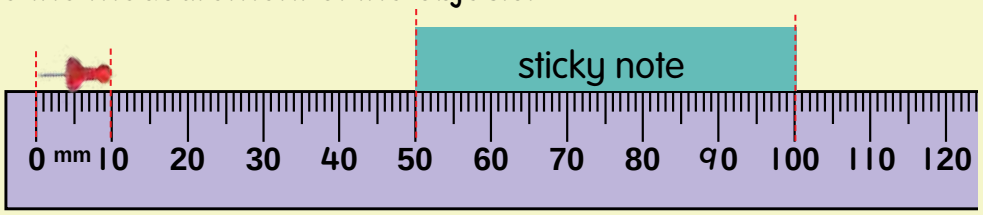
a The width of a bookmark is 40 ____.

b The distance from Nurul's house to the library is 5 ____.

c The length of a screw is measured in the unit of ____.

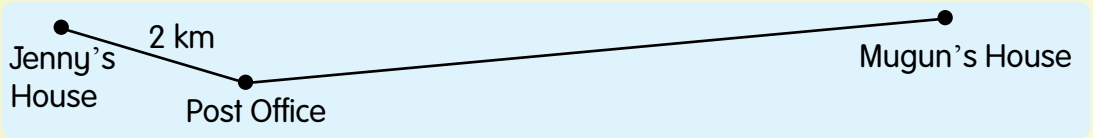
d The length of a river is stated in the unit of ____.

2 State the measurement of the objects.



a The length of the thumbtack is ____.

b The length of the sticky note is ____.

3 

Estimate the distance from Mugun's house to the post office.

4 Complete these.

a 65 mm = ____ cm ____ mm

b 84 km = ____ m

c 13 cm 2 mm = ____ mm

d 9 083 m = ____ km ____ m

e 7 km 18 m = ____ m

f 504 mm = ____ cm ____ mm

5 Solve these.

a 12 cm 3 mm + 7 cm 2 mm + 6 cm 9 mm = ____ cm ____ mm

b 42 km 963 m + 17 km 390 m + 2 km = ____ km ____ m

c 36 cm 2 mm – 29 cm 9 mm = ____ cm ____ mm

d 76 km 45 m – 23 km 371 m – 18 km 954 m = ____ km ____ m

e 3 × 25 cm 8 mm = ____ cm ____ mm

f 9 × 3 km 640 m = ____ km ____ m

g 49 cm 6 mm ÷ 8 = ____ mm

h 74 km 910 m ÷ 6 = ____ km ____ m

6 Calculate.

a 28 kg 833 g + 19 kg 110 g – 14 kg 495 g = ____ kg ____ g

b 48 kg 440 g × 2 ÷ 8 = ____ kg ____ g

c 5 ℓ 245 mℓ + 36 ℓ 973 mℓ – 8 ℓ = ____ ℓ ____ mℓ

d 9 × 6 ℓ 455 mℓ ÷ 3 = ____ mℓ

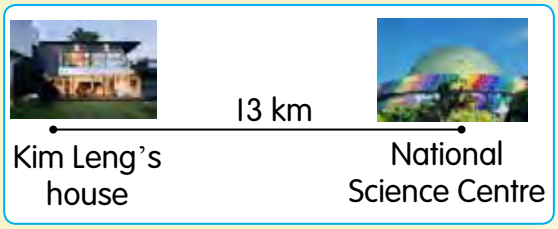
7 Solve the problems.

a The table shows the length of three wires, K, L and M. Find the length, in cm and mm, of wire M.

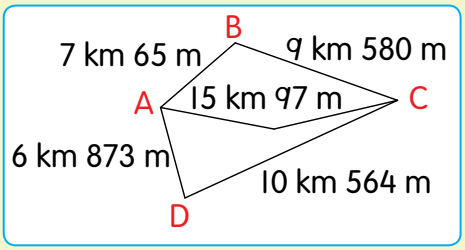
Wire	Length
K	27 cm 6 mm
L	5 cm 4 mm more than K
M	3 cm 8 mm more than L

b The diagram shows the distance from Kim Leng's house to the National Science Centre.

Kim Leng drives to the National Science Centre. His car broke down after driving a distance of 2 km 50 m. What is the remaining distance, in m, that he needs to travels?



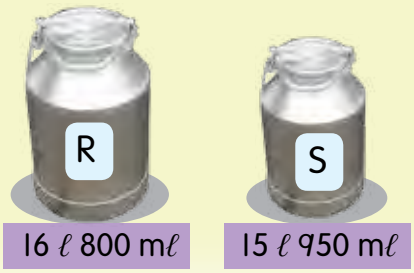
c The diagram shows a route map.



Kamala drives from A to C using the shortest route and goes back using the farthest route. Calculate the total distance, in km, that Kamala travels.

d The mass of a cake is 1 kg 472 g. The cake is cut into 8 equal parts. What is the mass, in g, of 3 parts?

e The diagram shows the volume of goat's milk in two containers, R and S. 23 ℓ 400 mℓ of the goat's milk is sold. Calculate the remaining volume, in ℓ and mℓ.



SPACE

RECOGNISE ANGLES

1

At the corners of this rectangle, there are spaces where the two straight lines meet. It is called an angle. This angle is a right angle.

A square has four right angles.

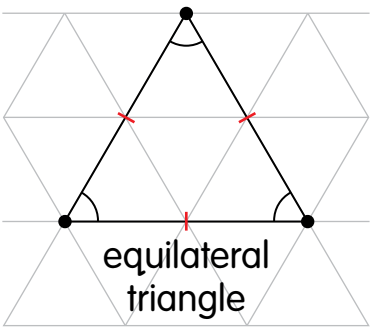
4 vertices.
4 angles.

right angle

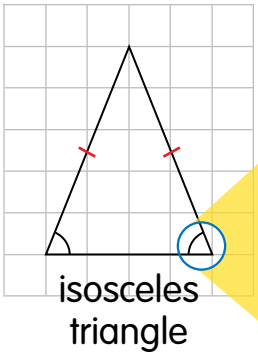
vertex

2

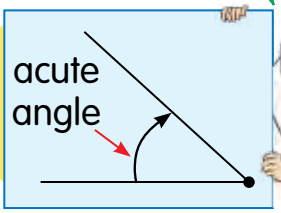
This triangle has acute angles. The acute angle is smaller than the right angle.



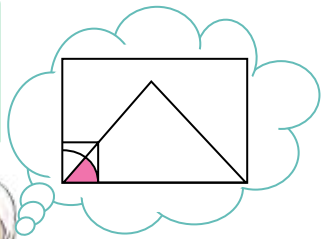
equilateral triangle



isosceles triangle



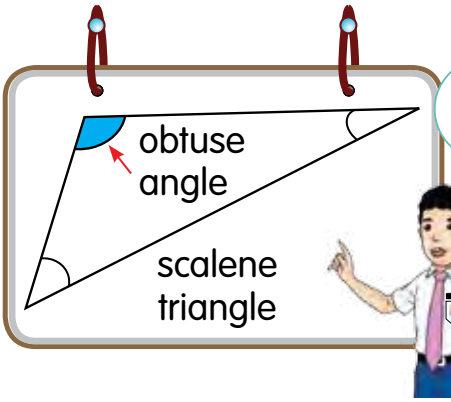
acute angle

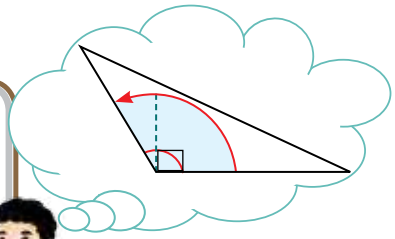


TEACHER'S NOTES

- Emphasise that the number of angles is equal to the number of vertices.
- Carry out paper folding activities to recognise right angle and acute angle. Differentiate both angles.
- Explain the meaning of the red marks on the equilateral triangle and isosceles triangle.

3





An obtuse angle is bigger than a right angle.

TIPS

A scalene triangle has three unequal sides.

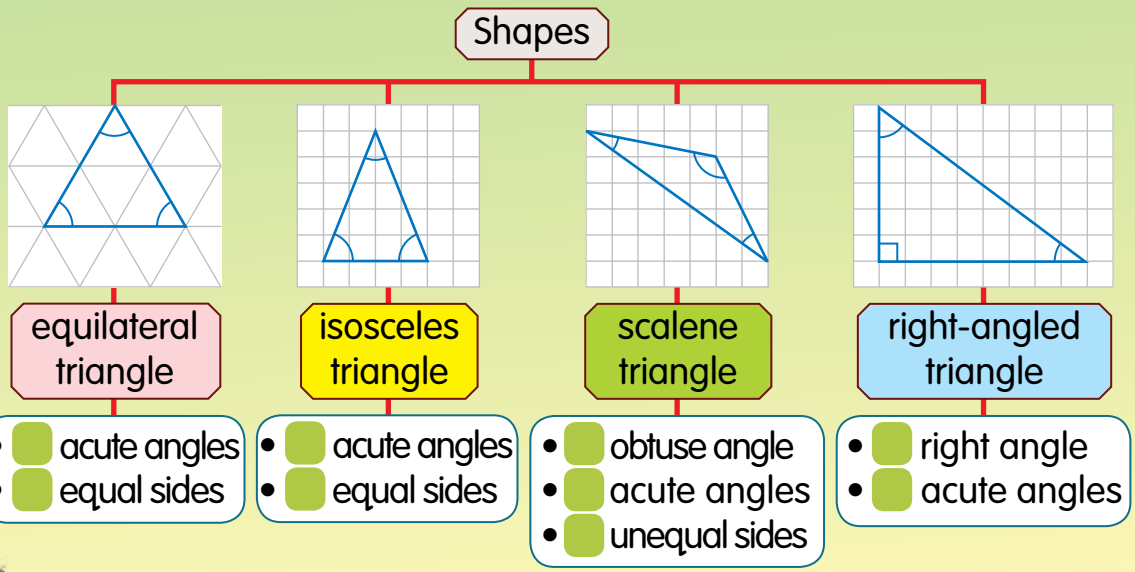
A scalene triangle has 1 obtuse angle and 2 ____.

MIND TEASER

A regular polygon has 6 vertices. How many angles does this polygon have? Name the type of angle.

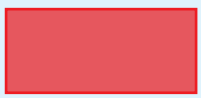
FUN EXPLORATION TRIANGLE CHART

Complete the mind map shown below. Then, present your work.



TEST YOURSELF

1 Label and name the angles of the following shapes.

a 

b 

c 

2 ____ angle is bigger than ____ angle.

TEACHER'S NOTES

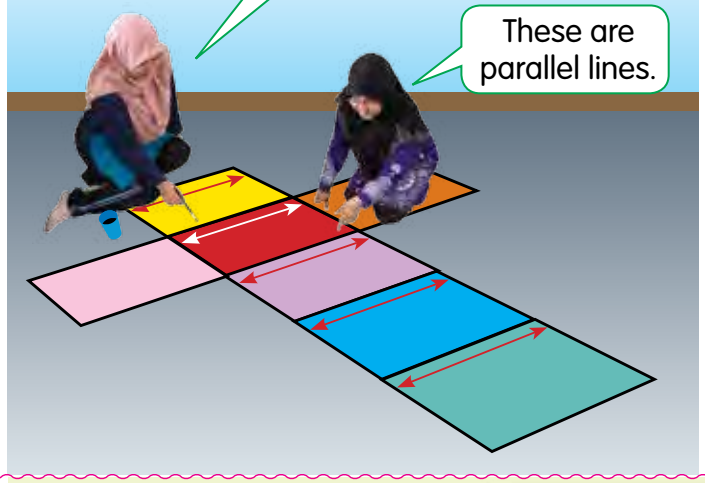
- Guide pupils to use geoboards to form angles in rectangles, squares, and various triangles.
- Surf https://www.ixl.com/math/grade-5/types-of-angles
- Carry out simulation activities using parts of the body to represent angles.

PARALLEL LINES AND PERPENDICULAR LINES

1

Look at this hopscotch grid. The vertical distance drawn between the two lines are always equal and do not cross each other.

These are parallel lines.



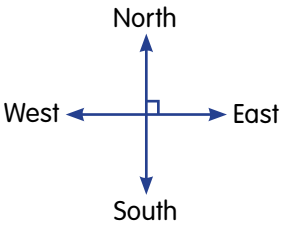
examples of parallel lines

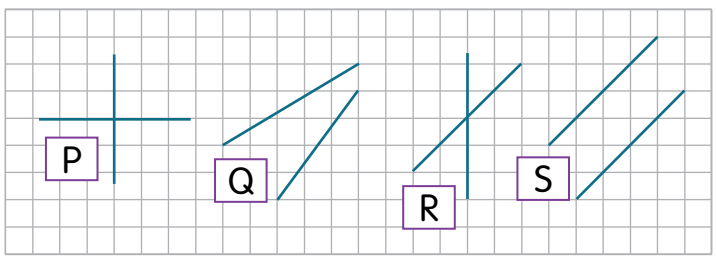
2

Let's look at the middle frame of the window.

The lines intersect at the right angle. These lines are known as perpendicular lines.

examples of perpendicular lines





Which are parallel lines? Which are perpendicular lines?

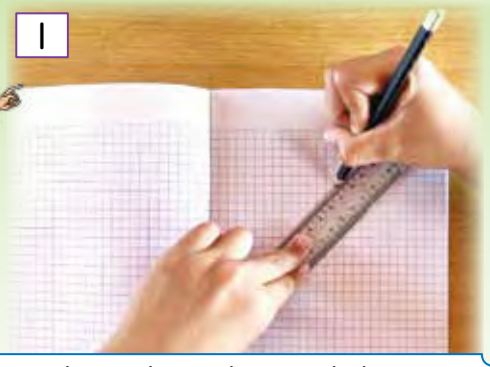
TEACHER'S NOTES

- Ask pupils to explore the examples of parallel lines and perpendicular lines outside the classroom and make a circle map.
- Surf https://www.ixl.com/math/grade-5/parallel-perpendicular-and-intersecting-lines

3

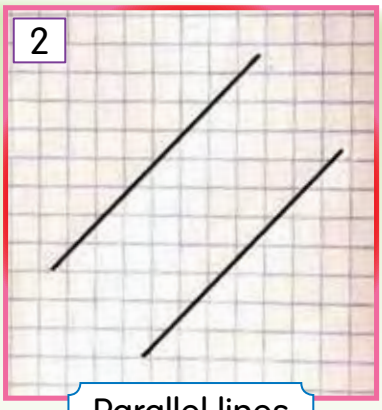
Let's draw parallel lines. We use the exercise book, a pencil, and a ruler.

1



Place the ruler and draw straight lines on both sides of the ruler.

2

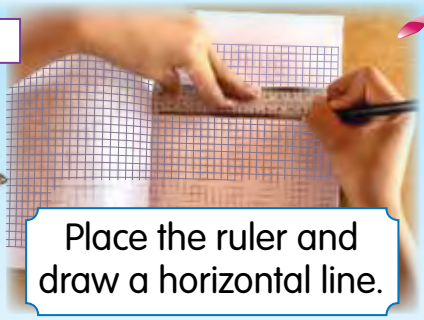


Parallel lines are formed.

Will the parallel lines intersect? Discuss.

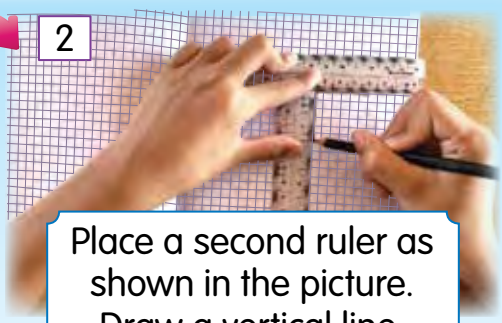
4 Let's draw perpendicular lines.

1



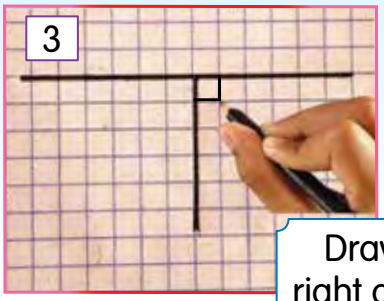
Place the ruler and draw a horizontal line.

2



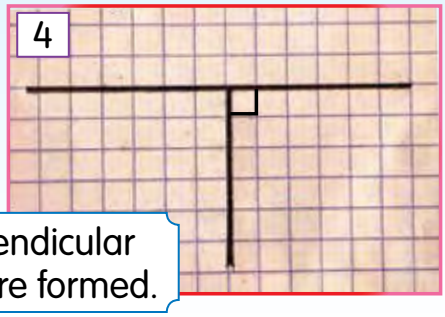
Place a second ruler as shown in the picture. Draw a vertical line.

3



Draw a right angle.

4



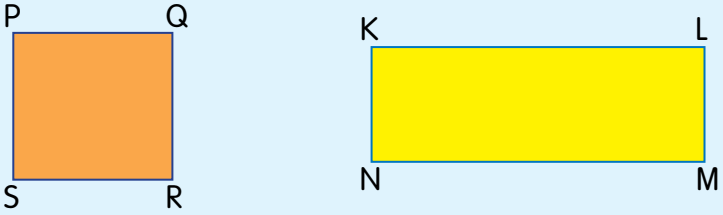
Perpendicular lines are formed.

TEACHER'S NOTES

- Carry out drawing parallel lines activity using two pencils which are tied together and drawing perpendicular lines activity using other suitable objects such as lines on graph paper and boxes.

TEST YOURSELF

1 The diagram shows a square and a rectangle.



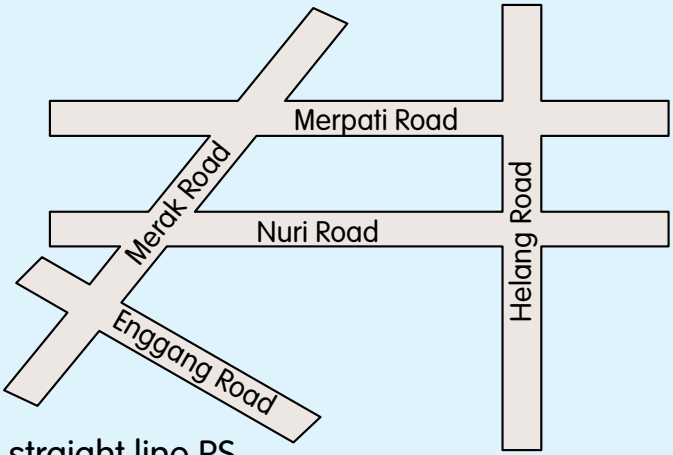
a State the lines which are perpendicular to lines PQ and KN.

b State the lines which are parallel to lines PS and KL.

2 The diagram shows a road map.

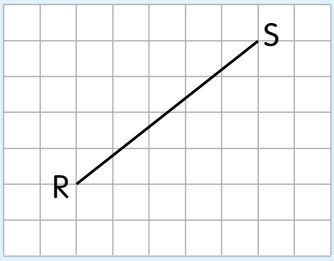
a State the street which is parallel to Merpati Road.

b State the streets which form perpendicular lines.

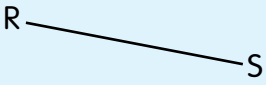


3 Draw a parallel line to the straight line RS.

a

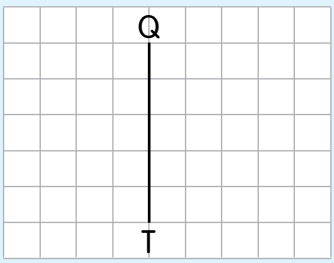


b

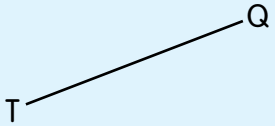


4 Draw a perpendicular line to the straight line TQ.

a



b

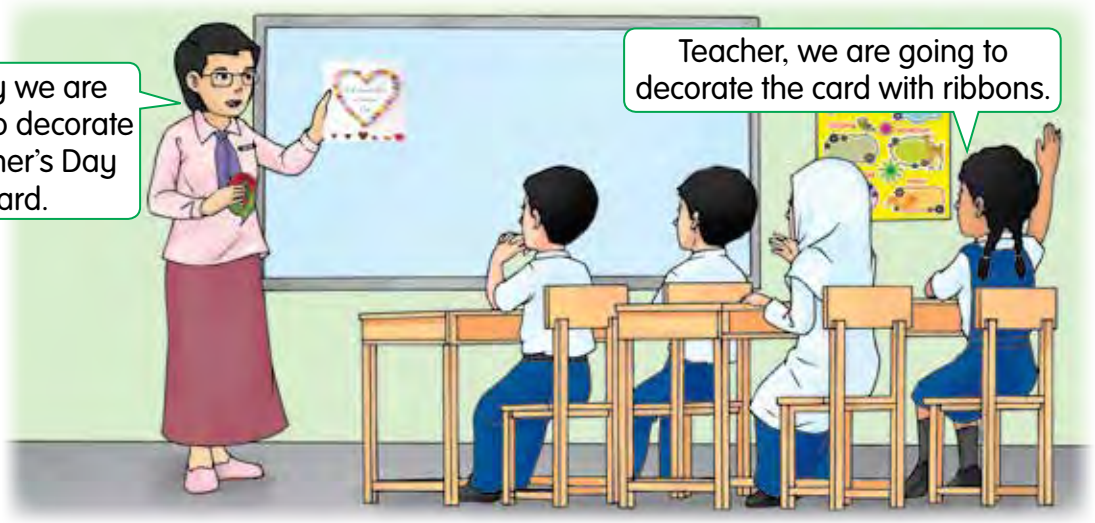


TEACHER'S NOTES

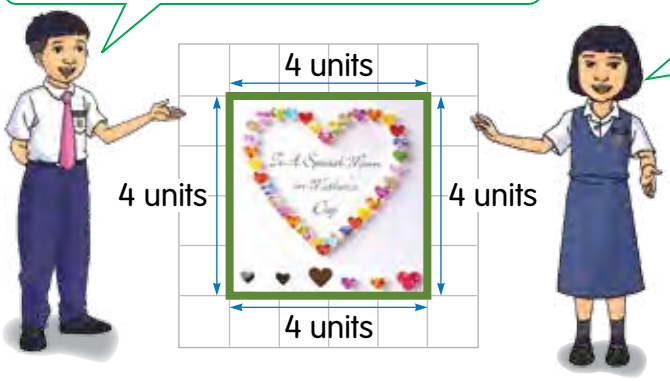
- Use MS Word or geoboard to construct parallel lines and perpendicular lines.
- Surf https://www.mathgames.com/skill/4.3-parallel-perpendicular-intersecting and https://www.turtlediary.com/quiz/parallel-perpendicular-intersecting-lines.html

6.2.1
6.2.2

PERIMETER



a Let's calculate the length of the green ribbon. The length of 1 square is 1 unit.



The length of the green ribbon is 16 units. The length of the outline of the card is called perimeter.

TIPS

Perimeter is the total length of all sides.

4 units + 4 units + 4 units + 4 units = 16 units

b What is the length of the red ribbon used?

The length of the red ribbon is the perimeter of the hexagon.

Perimeter

= ☐ + ☐ + ☐ + ☐ + ☐ + ☐

= ☐

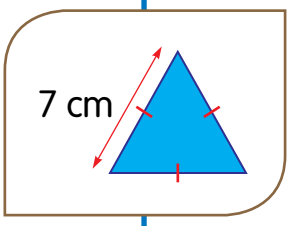
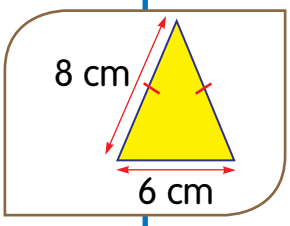
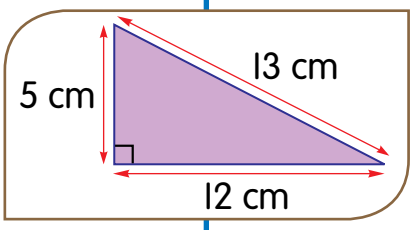
Calculate the perimeter of a regular pentagon with the sides of 8 cm.

TEACHER'S NOTES

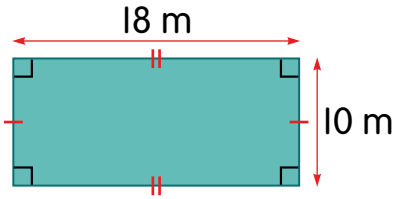
- Introduce the concept of perimeter by walking around the badminton court and netball court.
- Carry out activities to find the perimeter of a table, blackboard, book cover, and door using a ruler and a measuring tape.

2

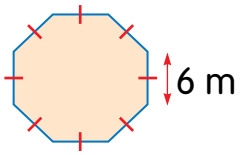
Perimeter

equilateral triangle	isosceles triangle	right-angled triangle
		
$3 \times 7 \text{ cm} = 21 \text{ cm}$	$8 \text{ cm} + 8 \text{ cm} + 6 \text{ cm}$ $= \square \text{ cm}$	5 cm $\square$ $+ 12 \text{ cm}$ $\square$

3



Perimeter of a rectangle
$= 18 \text{ m} + 10 \text{ m} + \square + \square$
$= \square \text{ m}$

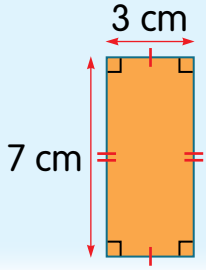


Perimeter of a regular octagon
$= \square \times 6 \text{ m}$
$= \square \text{ m}$

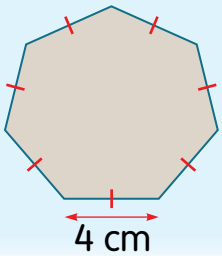
Name a regular polygon with the perimeter of 15 cm.

Find the perimeter of each of the shapes below.

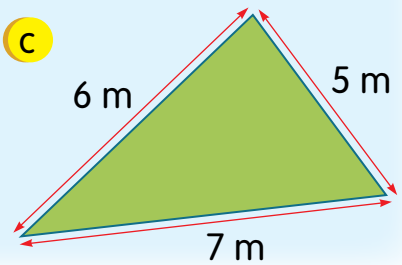
a



b



c



- Surf https://www.ixl.com/math/grade-5/perimeter-with-whole-number-side-lengths
- Carry out activities to construct shapes of equal perimeters but with different length of sides.
- Explain the meaning of the red marks on the sides of polygon.

AREA

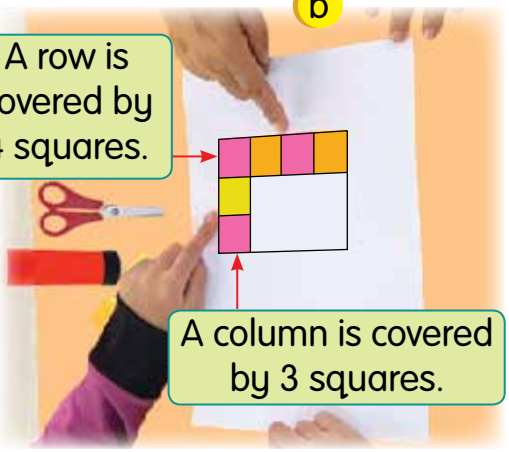
1

The length of each side of this square is 1 unit. The size of the surface is 1 square unit. We are going to paste this shape to cover all the space in the rectangle.

a

b

A row is covered by 4 squares.

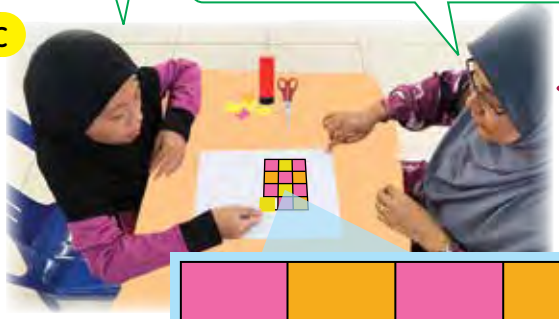


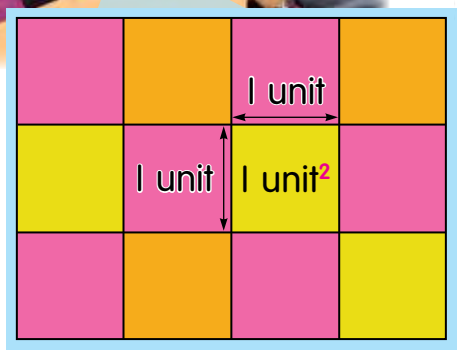
A column is covered by 3 squares.

I paste 12 squares.

So, the size of the surface is 12 square units. The size of the surface is called area.

c





This is read as 1 square unit.

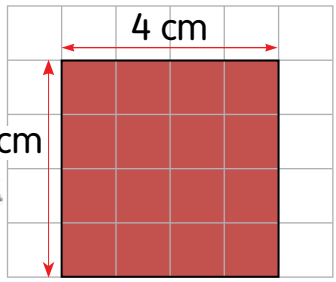
TIPS

Area is stated in square units.

Length	Width	Number of square units	Length × Width	Area
4 units	3 units	12 square units	4 units × 3 units	12 square units

2

What is the area of the square?



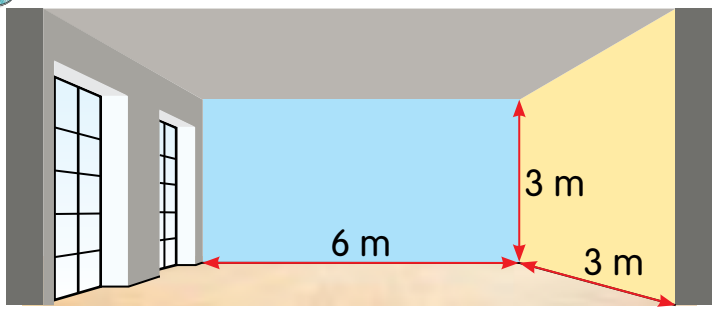
area = length × width
= 4 cm × 4 cm
= 16 cm²

The area of the square is **16 square cm**.

TEACHER'S NOTES

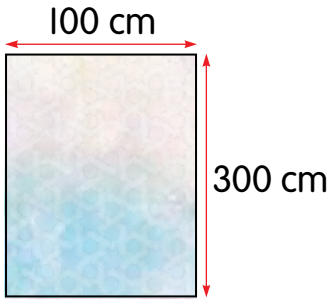
- Based on the area given, use square grids measuring 1 square unit to draw a square and a rectangle.
- Emphasise that cm × cm = cm² and m × m = m².

3 Find the area of the blue wall.

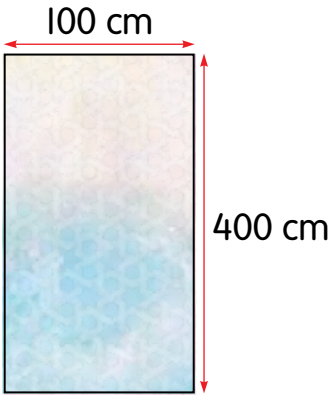


Area of the blue wall
= length × width
= 6 m × 3 m
= ☐ m²

Amirah wants to cover the yellow wall with wallpaper. Which size would she choose? Why?



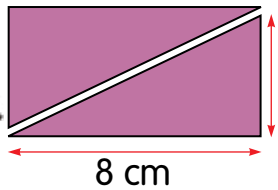
P



Q

4

A rectangle can be split into two equal triangles.



The area of a ◢ is half the area of a ▭.

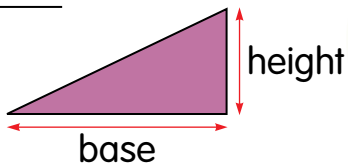
Method 1

$$\text{Area } ◢ = \frac{\text{Area of rectangle}}{2}$$

$$= \frac{8\text{ cm} \times 6\text{ cm}}{2}$$

$$= \frac{48\text{ cm}^2}{2}$$

$$= \mathbf{24\ cm^2}$$



Method 2

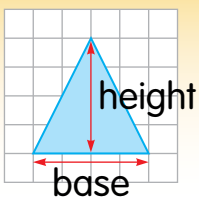
$$\text{Area } ◢ = \frac{1}{2} \times \text{base} \times \text{height}$$

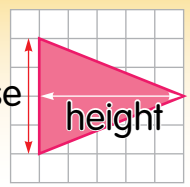
$$= \frac{1}{\cancel{2}_{1}} \times \cancel{8}^{4}\text{ cm} \times 6\text{ cm}$$

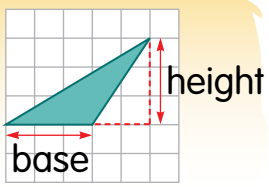
$$= \mathbf{24\ cm^2}$$

TIPS

Height and base of various triangles.



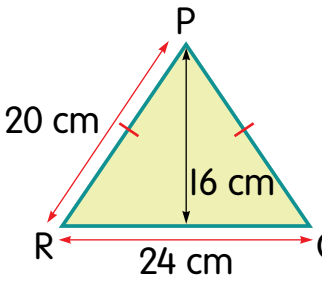




TEACHER'S NOTES

- Emphasise that the area of a triangle is half the area of a rectangle or a square.
- Train pupils to identify the base and height of various triangles.

5 Find the area of triangle PQR.



Card 1

Area of PQR = $\frac{1}{2}$ × 24 cm × 16 cm

= **192 cm²**

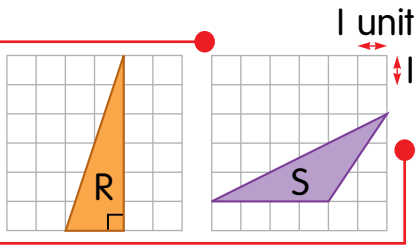
Card 2

Area of PQR = $\frac{1}{2}$ × 24 cm × 20 cm

= **240 cm²**

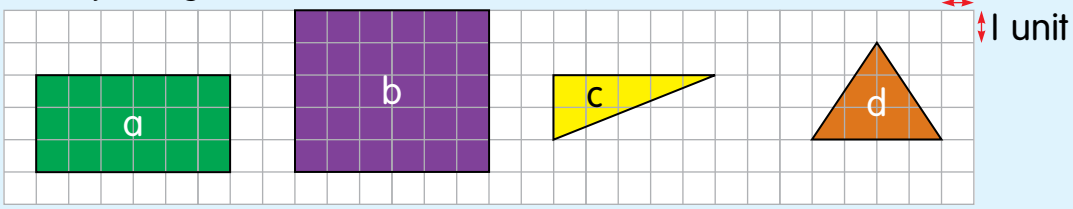
Which card shows the correct calculation? Why?

Is the area of triangle R equal to the area of triangle S? Prove it.



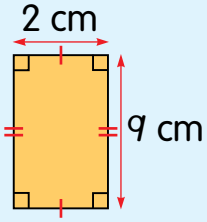
TEST YOURSELF

1 Calculate the area of the following shapes shown on the square grid below.

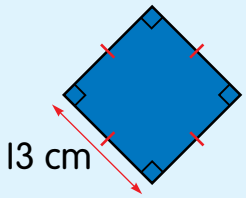


2 Calculate the area of the following quadrilaterals and triangle.

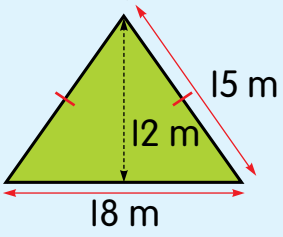
(a)



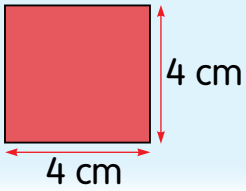
(b)



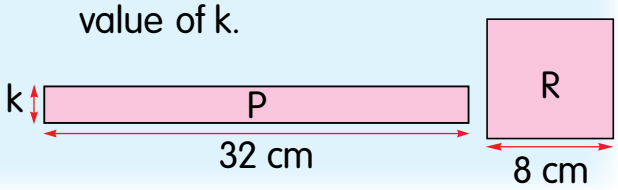
(c)



3 Find the area of an isosceles triangle from this shape.



4 The area of rectangle P is equal to the area of square R. State the value of k.

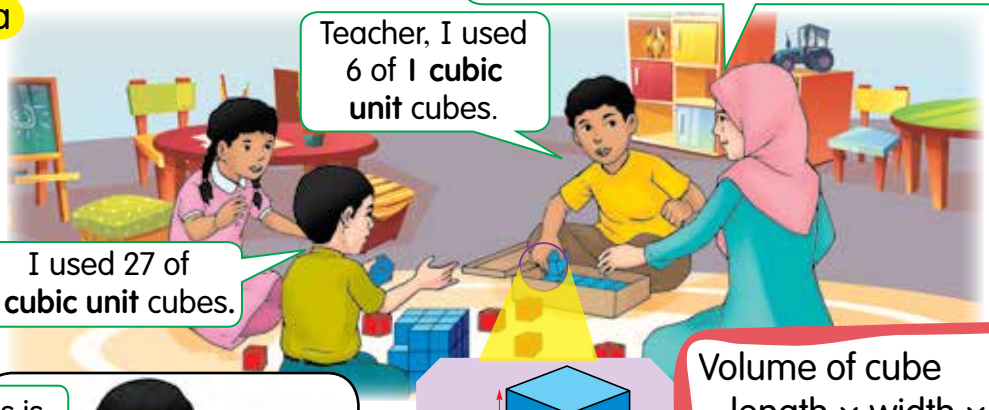


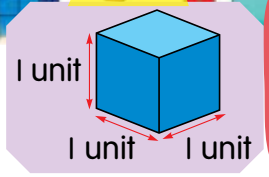
TEACHER'S NOTES

- Surf https://www.ixl.com/math/grade-5/area-of-squares-and-rectangles and https://www.ixl.com/math/grade-5/area-of-triangles
- Guide pupils to explore various shapes of equal perimeters but with different areas and vice versa.

VOLUME

1 a



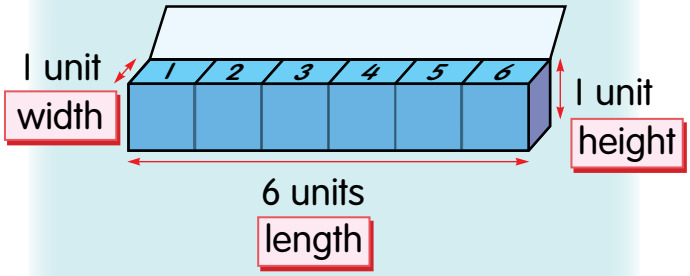


Volume of cube
= length × width × height
= 1 unit × 1 unit × 1 unit
= 1 unit^3

TIPS

Volume is a three dimensional space enclosed by the amount of space it takes up. Volume is quantified in cubic unit.

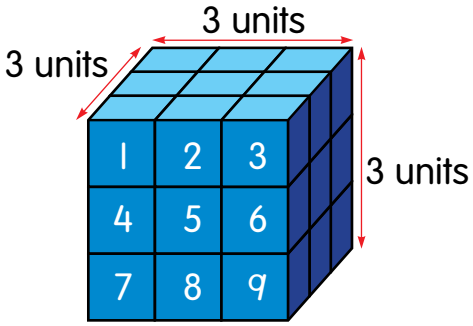
b The box is filled with 6 cubes.



Volume of the box
= volume of 6 cubes
= 6 units^3

Volume
= 6 units × 1 unit × 1 unit
= 6 units^3

c The cube model contains 27 cubes.



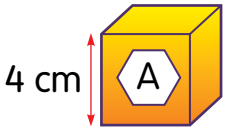
Volume of the cube model
= volume of 27 cubes
= 27 units^3

Volume
= 3 units × 3 units × 3 units
= 27 units^3

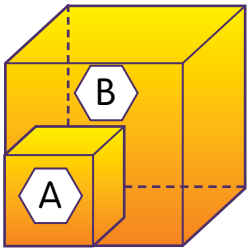
TEACHER'S NOTES

- Conduct this activity: Combine a few cubes of 1 cubic unit to form a model and state the volume, or fill a few cubes of 1 cubic unit into certain sizes of boxes and state the volume covered by the cubes.

2 Calculate the volume of cube A.

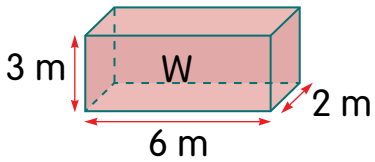


Volume of cube A
$= 4 \text{ cm} \times 4 \text{ cm} \times 4 \text{ cm}$
$= 64 \text{ cm}^3$



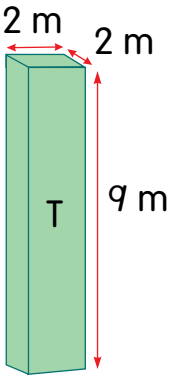
Estimate the volume of cube B.

3 What is the volume of cuboid W?

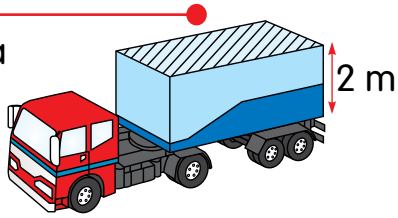


Volume = Base area × Height
= 6 m × 2 m × 3 m
= ____

Is the volume of cuboid T equal to the volume of cuboid W?



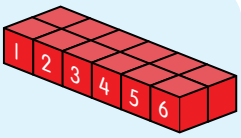
The shaded surface area of the container is 12 m^2. Calculate the volume of the container.



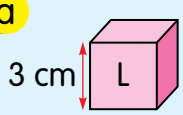
TEST YOURSELF

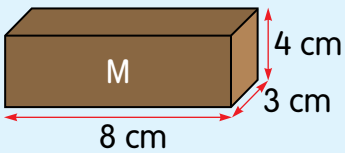
1 State the volume of the blocks built by 1 cubic unit cubes.

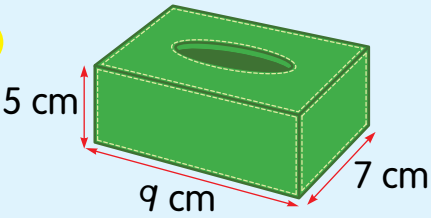
a 

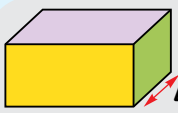
b 

2 Calculate the volume of cube L, cuboid M, and a tissue box.

a 

b 

c 

3 

The area of the yellow surface is 15 cm^2. What is the volume of this cuboid?

- Guide pupils to find the base area multiplied by height to calculate the volume of a cube or a cuboid.
- Surf https://www.ixl.com/math/grade-5/volume-of-rectangular-prisms-made-of-unit-cubes and https://www.ixl.com/math/grade-5/volume-of-cubes-and-rectangular-prisms

SOLVE THE PROBLEMS

1 The picture shows a square-shaped cow farm. Zaini wants to build a fence around the farm. The length of one side of the fence is 16 m.

a What is the total length of the fence?

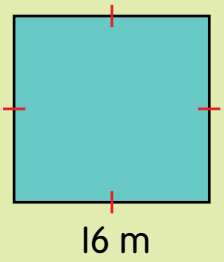
b Calculate the area of the cow farm.

• Understand the problem •

- square shape
- length of one side of the fence is 16 m
- find the total length of the fence
- find the area of the farm

• Plan the strategy •

Draw a diagram. The length of all sides of the square are equal.



• Solve •

a 16 m + 16 m + 16 m + 16 m = ▭ m

$$\begin{array}{r} {\scriptstyle 2}16\text{ m} \\ 16\text{ m} \\ 16\text{ m} \\ +\,16\text{ m} \\ \hline 64\text{ m} \end{array}$$

b Area of the cow farm
= length × width
= 16 m × 16 m
= 256 m²

$$\begin{array}{r} {\scriptstyle 3}16\text{ m} \\ \times\ 16\text{ m} \\ \hline 96 \\ +\,160 \\ \hline 256\text{ m}^2 \end{array}$$

• Check •

a
$$\begin{array}{r} {\scriptstyle 2}16\text{ m} \\ \times\ 4 \\ \hline 64\text{ m} \end{array}$$

b
$$\begin{array}{r|l} & 16\text{ m} \\ \hline 16\text{ m} & 256\text{ m}^2 \\ -\,16 & \\ \hline 96 & \\ -\,96 & \\ \hline 0 & \end{array}$$

The length of a goat farm is 4 m longer than the length of the cow farm. Given that the width of both farms are equal. Calculate the area of the goat farm.

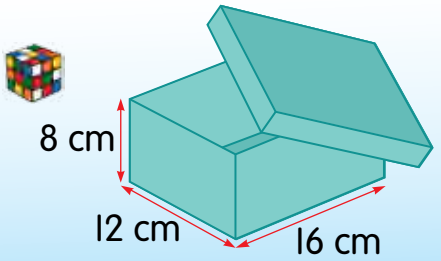
The total length of the fence is **64 m**.

The area of the cow farm is **256 m²**.

TEACHER'S NOTES

• Guide pupils to draw a diagram to solve the problem.

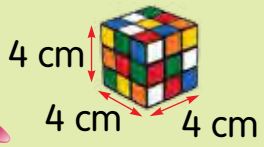
2 David arranges Rubik's cubes with the sides of 4 cm into a box as shown in the picture. How many Rubik's cubes can be placed in the box?



• Understand the problem •

- The length of each side of the Rubik's cube is 4 cm.
- The size of the box is 16 cm × 12 cm × 8 cm.
- Find the number of Rubik's cubes in the box.

• Plan the strategy •



• Solve •

Volume of box = 16 cm × 12 cm × 8 cm
= 1 536 cm³

$$\begin{array}{r} {\scriptstyle 1}\ 16\text{ cm} \\ \times\ 12\text{ cm} \\ \hline 32 \\ +\ 160 \\ \hline 192\text{ cm}^2 \end{array} \qquad \begin{array}{r} {\scriptstyle 7\ 1}\ 192\text{ cm}^2 \\ \times\ \ 8\text{ cm} \\ \hline 1\ 536\text{ cm}^3 \end{array}$$

Volume of Rubik's cube
= 4 cm × 4 cm × 4 cm
= 64 cm³

$$\begin{array}{r} 4\text{ cm} \\ \times\ 4\text{ cm} \\ \hline 16\text{ cm}^2 \end{array} \qquad \begin{array}{r} {\scriptstyle 2}\ 16\text{ cm}^2 \\ \times\ \ 4\text{ cm} \\ \hline 64\text{ cm}^3 \end{array}$$

Divide 1 536 by 64 to find the number of Rubik's cubes.

$$\begin{array}{r} 24 \\ 64\overline{)\ 1\ 536} \\ -\ 128 \\ \hline 256 \\ -\ 256 \\ \hline 0 \end{array}$$

Discuss the method to check the answer.

The number of Rubik's cubes is **24**.

TEST YOURSELF

1 Zura used 240 cm of black lace to decorate a square table cloth.

(a) How long, in cm, is each side of the table cloth?

(b) Calculate the surface area, of the table cloth, in cm².

2 Lai Fong arranges 48 cubes in a cuboid-shaped box. The length of each side of the cubes is 3 cm. What is the volume of the cuboid-shaped box, in cm³?

TEACHER'S NOTES

- Use various calculation strategies to find the perimeter and area of a square and a rectangle, as well as the volume of a cube and a cuboid.

SPACE EVERYWHERE

Method

1 Divide pupils into four groups.

2 Give a task card to each group.

Task 1 Construct a chart of parallel lines and perpendicular lines.

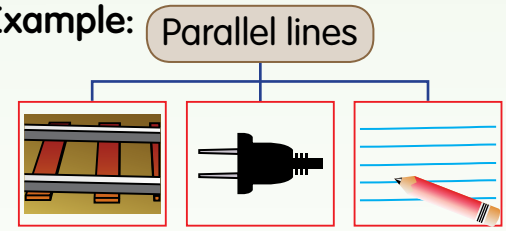
Task 2 Construct a bridge map for perimeter.

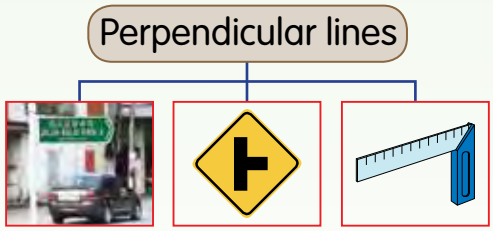
Task 3 Construct a circle map for area.

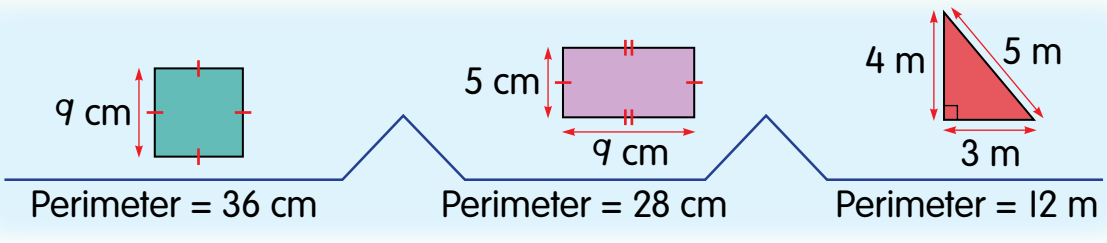
Task 4 Construct a tree map for volume.

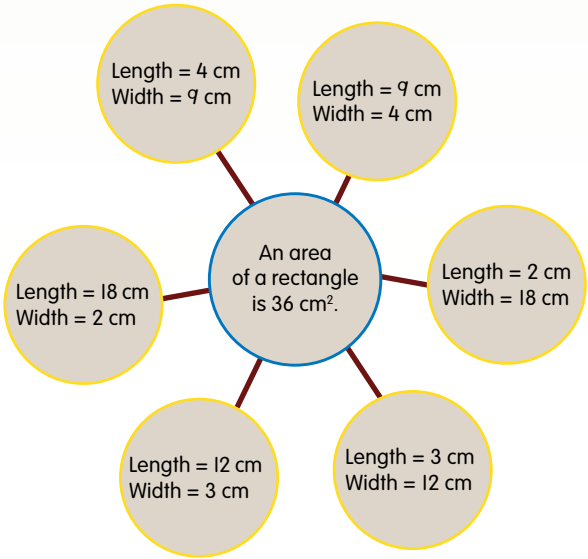
3 All groups present this work at the mathematics corner.

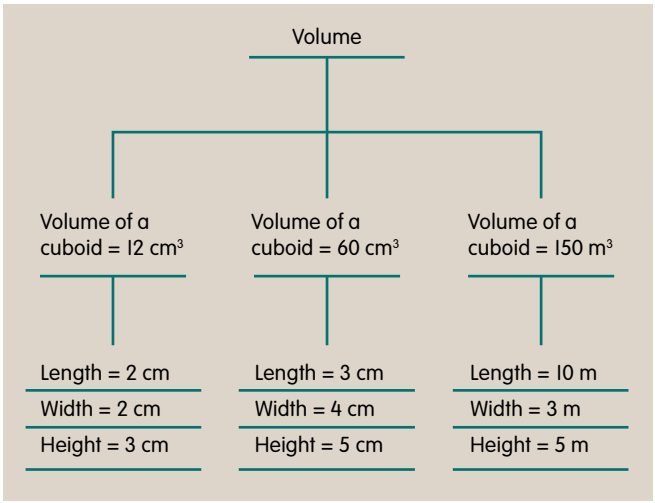
Example:









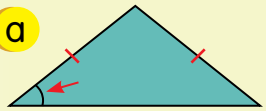


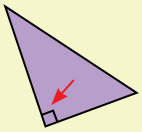
TEACHER'S NOTE

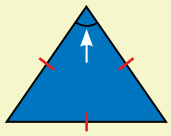
- Prepare sufficient learning materials such as newspapers, magazines, and brochures. Guide pupils to carry out the Mind Riddle task in groups.

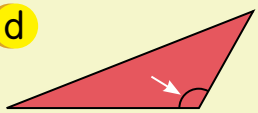
MIND CHALLENGE

1 Name the following triangles. Label the angles shown by the arrows.

a 

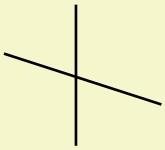
b 

c 

d 

2 State the parallel lines, perpendicular lines, or none.

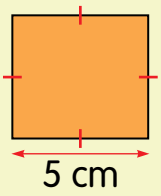
a 

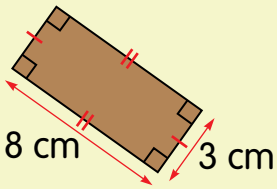
b 

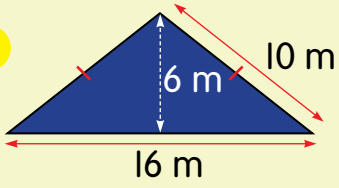
c 

d 

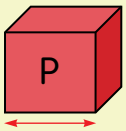
3 Find the perimeter and area of the shapes below.

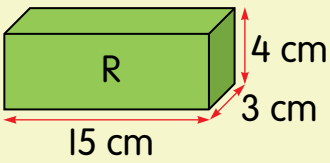
a 

b 

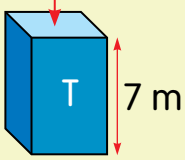
c 

4 Calculate the volumes of cube P, cuboid R, and cuboid T.

a 

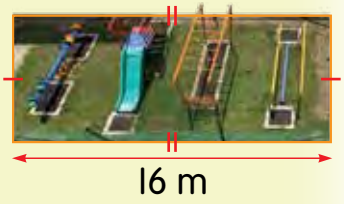
b 

c Surface area = 12 m^2



5 Solve the problems.

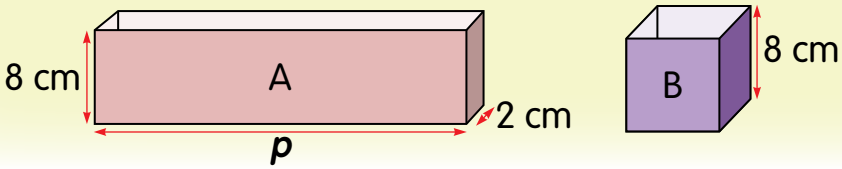
a The picture shows a rectangular playground. The length of the fence around the playground is 50 m.



i Calculate the width of the playground.

ii Calculate the area of the playground.

b Raju has two containers, cuboid A and cube B. The volume of both containers are equal. What is the value of ***p***?



TEACHER'S NOTES

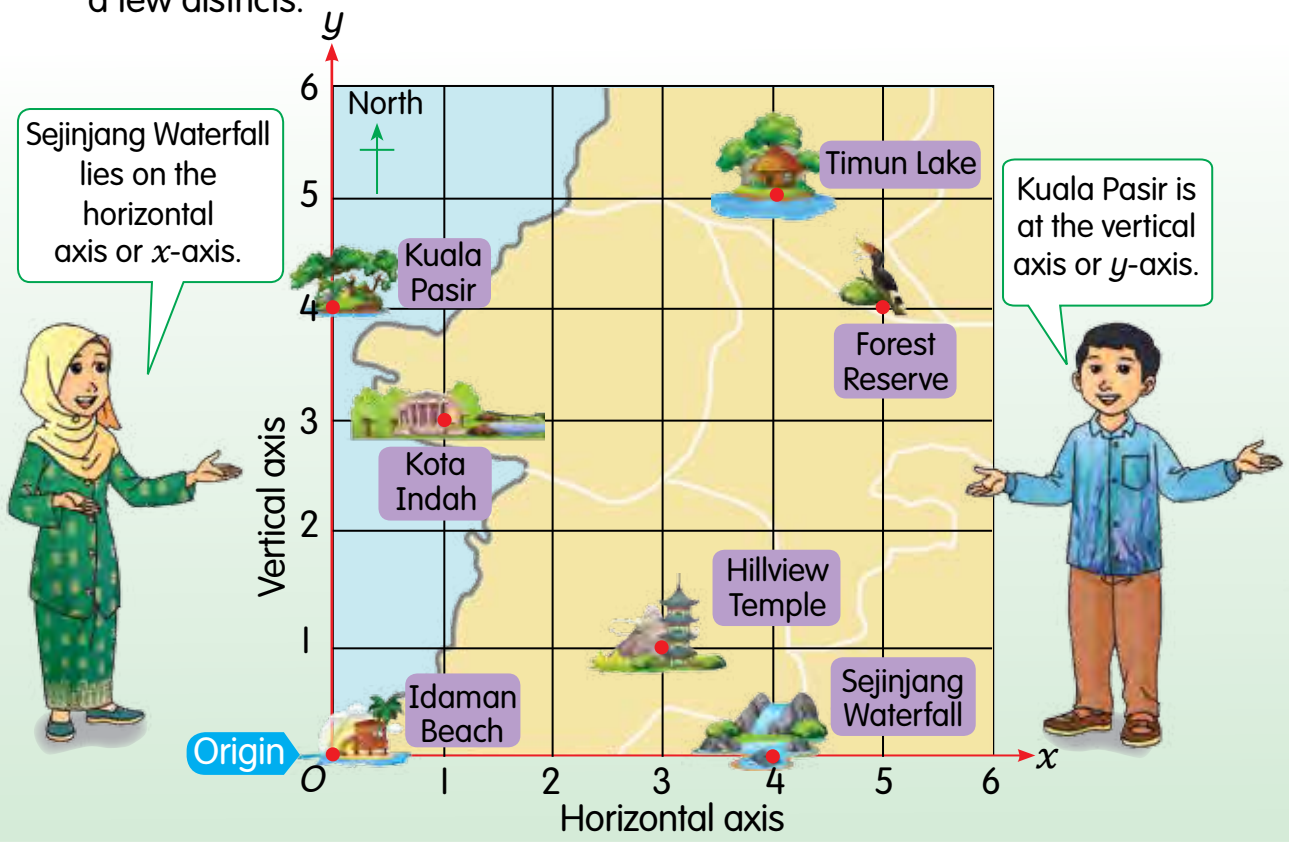
- Give pupils additional exercises on problem-solving to be solved in pairs.

6.1, 6.2, 6.3, 6.4, 6.5

7 COORDINATES, RATIO, AND PROPORTION

RECOGNISE AND DETERMINE THE COORDINATES

1 The map on the Cartesian plane shows the places of interest in a few districts.



a The intersection point of the x-axis and y-axis is called origin, O. The **coordinate of Idaman Beach** which is at the origin is written as (**0**, **0**).

b Timun Lake is 4 units to the east and 5 units to the north of the origin. The **coordinate of Timun Lake** is written as (**4**, **5**).

c The **coordinate of Sejinjang Waterfall** is (**4**, **0**).

d The **coordinate of Kuala Pasir** is ____ and **Hillview Temple** is ____.

TIPS

To write a coordinate, write the coordinate of x-axis, followed by the y-axis.

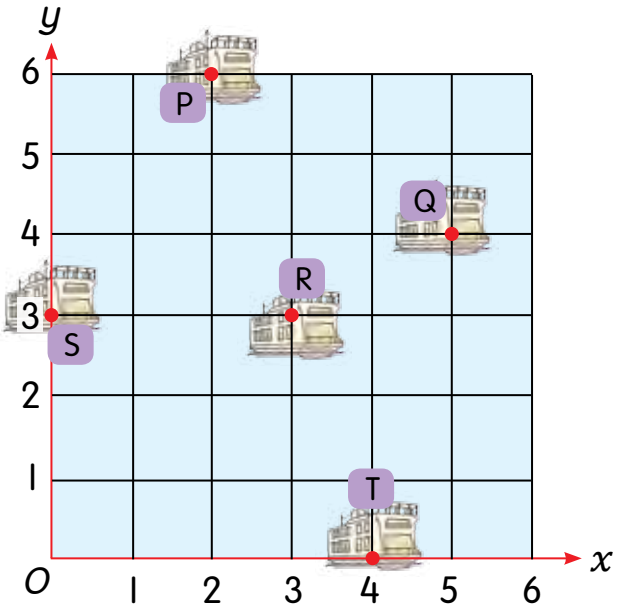
TEACHER'S NOTES

- Introduce pupils to the French mathematician, Rene Descartes, the founder of the coordinates system.
- Emphasise that the symbol of the origin is O, not zero, which means *origin*.
- Discuss the coordinate of other places. Emphasise that the coordinate of x-axis and y-axis are determined from the origin.

7.1.1
7.1.2

KPM

2 The picture shows the position of five ferries at a harbour.



Ferry P is at (**2**, **6**), while **ferry T** is at (**4**, **0**).

State the ferries that are in the same row.

The coordinates of vertices of a square are at (1, 2), (1, 5), (4, 5) and point K. State the coordinate of point K.

TEST YOURSELF

Based on the Cartesian plane, fill in the empty boxes.

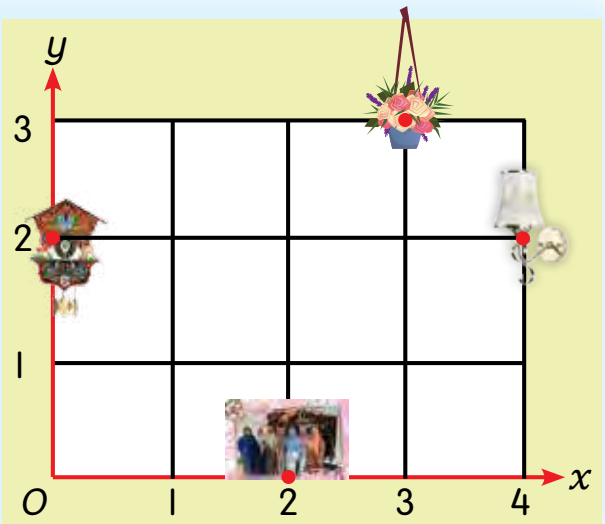
a The horizontal axis is ____.

b The vertical axis is ____.

c *O* is ____. The coordinate is ____.

d State the coordinates of the clock and the lamp.

e ____ is at (2, 0) and ____ is at (3, 3).



TEACHER'S NOTES

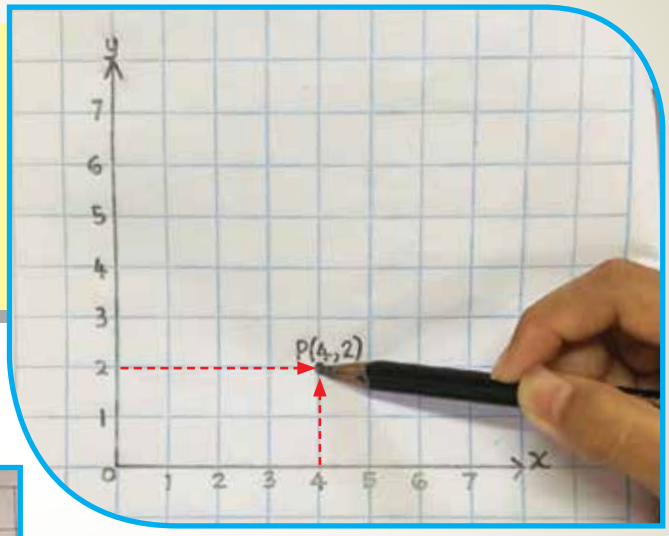
- Use tiles as the Cartesian plane to determine coordinates. For example, the coordinates of pupils, chairs, and tables in a classroom.
- Surf https://www.mathsisfun.com/data/cartesian-coordinates.html

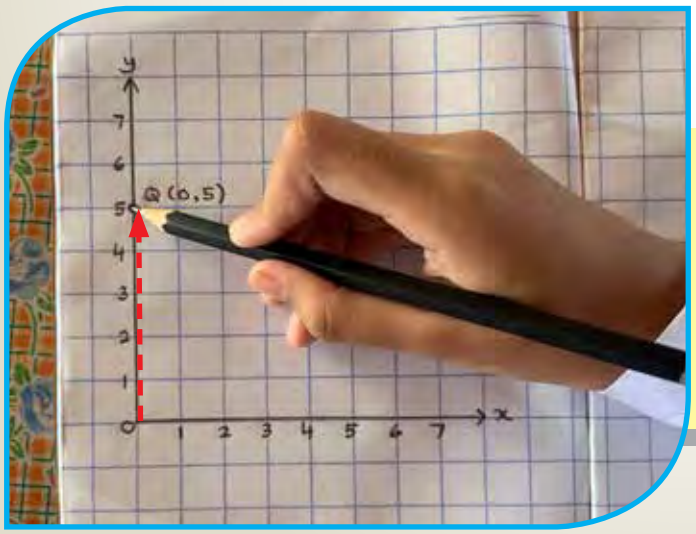
7.1.1
7.1.2

MARK COORDINATES OF POINTS

1 Mark the coordinate of P at (4, 2).

- From the origin, move 4 units to the right and 2 units up.
- Mark point P.
- Write P (4, 2).





2 Mark the coordinate of Q at (0, 5).

- From the origin, move 5 units up.
- Mark point Q.
- Write Q (0, 5).

Explain how to mark and write coordinate R (6, 0).

TEST YOURSELF

Mark the following points on the Cartesian plane.

R (0, 5)	S (3, 0)
T (1, 3)	U (4, 4)

A butterfly is at 3 units to the right from the origin. It flew 6 units up and landed on a hibiscus. What is the coordinate of the hibiscus?

TEACHER'S NOTES

- Discuss the uses of coordinates in daily situations, such as in flight and when sailing.
- Surf https://www.ixl.com/math/grade-5/coordinate-planes-as-maps and https://www.ixl.com/math/grade-5/objects-on-a-coordinate-plane

RATIO

INGREDIENTS OF *KUIH LAPIS*

- 2 cups of rice flour
- $\frac{1}{2}$ cup of wheat flour
- $\frac{1}{2}$ cup of corn flour
- 1 cup of thick coconut milk
- 3 cups of water
- 1 cup of sugar
- $\frac{1}{4}$ teaspoon of salt
- a few drops of red colouring and rose essence

Source: https://iluminasi.com/bm/resepi-kuih-lapis.html

a What is the ratio of the number of cups of sugar to the number of cups of thick coconut milk?

1 cup of sugar

1 cup of thick coconut milk

The ratio of one to one is written as **1 : 1**.

The ratio of the number of cups of sugar to **the number of cups of thick coconut milk** is **1 : 1**.

b State the ratio of the number of cups of sugar to the number of cups of rice flour.

1 cup of sugar

2 cups of rice flour

The ratio of one to two is written as **1 : ▢**.

The ratio of the number of cups of sugar to **the number of cups of rice flour** is ▢ : ▢.

TIPS

A ratio is the comparison between two quantities of the same unit.

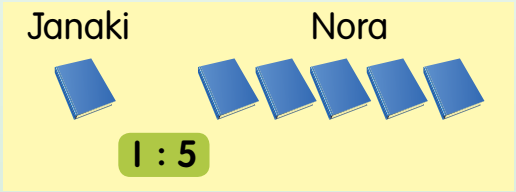
TEACHER'S NOTES

- Explain the concept of ratio through simulation activities involving classroom equipment, sports equipment, and textbooks.
- Emphasise the correct way of writing ratio.
- Carry out activities on finding ratio of other suitable ingredients from the recipe.

2 Number of storybooks read by four pupils in a week.

Pupil	Janaki	Shery	Koon	Nora
Number of storybooks				

State the ratio of the number of Janaki's storybooks to the number of Nora's storybooks.



The ratio of the number of Janaki's storybooks to **the number of Nora's storybooks** is **1 : 5**.

State the ratio of the number of Janaki's storybooks to the number of:

(a) Shery's storybooks.

(b) Koon's storybooks.

3 Chiew's mother cooks fish and chicken. What is the ratio of the mass of fish to the mass of chicken as shown below?

TIPS

The unit of ratio is not required to be written.

The ratio of the mass of fish to the mass of chicken is **1 : 10**.

TEACHER'S NOTES

- State the ratio of daily situations such as days and weeks, years and decades as well as years and centuries. Besides, try out conversion of units involving money, length, mass, or volume.

FACTS AT A GLANCE

There are 8 planets in the Solar System. The size of Earth is 4 times the size of its Moon.

Based on the fact, state the ratio of:

a the number of the Sun to the number of planets.

b the size of the Moon to the size of Earth.

4 The pictures show the prices of three items bought by Fuad's brother.

RM1

RM100

RM1 000

a State the ratio of the price of the bookmark to the price of the shoes.

price of bookmark

price of shoes

1 : 100

The ratio of the price of the bookmark to **the price of the shoes** is **1 : 100**.

b State the ratio of the price of the bookmark to the price of the handphone.

price of bookmark	price of handphone
RM1	RM1 000
☐	☐

:

The ratio of the price of the bookmark to **the price of the handphone** is ☐ : ☐.

TEACHER'S NOTES

- Emphasise that units such as cm, mℓ, and kg are not required to be written when stating the ratio.
- Use grid paper and graph paper to represent the ratio of 1 : 10, 1 : 100 and 1 : 1 000.

5 Look at the picture. State the ratio of the volume of cucumber juice to the volume of carrot juice.

volume of cucumber juice	volume of carrot juice
1 ℓ	4 000 mℓ
1 ℓ	4 ℓ

The ratio of the volume of cucumber juice to the volume of carrot juice is ▭ : ▭.

TIPS

When stating a ratio, ensure that all the quantities are in the same units.

Mass of papaya	Mass of coconut
1 kg	1 000 g

The ratio of the mass of papaya to the mass of coconut is 1 : 1 000.

Is the answer correct? Discuss.

TEST YOURSELF

1 The picture shows a vase of flower. State the ratio of:

(a) the number of roses to the number of tulips.

(b) the number of roses to the number of sunflowers.

2 The table shows the length of three wires.

Wire	R	S	T
Length	1 mm	1 cm	1 m

State the ratio of:

(a) the length of wire R to the length of wire S.

(b) the length of wire S to the length of wire T.

3


1 mℓ


100 mℓ


1 ℓ

State the ratio of:

(a) the volume of 1 mℓ syringe to the volume of 100 mℓ syringe.

(b) the volume of 1 mℓ syringe to the volume of 1 ℓ of liquid bag.

TEACHER'S NOTES

- Provide more exercises involving ratio of 1 to 8 and ratio of 1 to 9, such as pupils' game scores.

PROPORTION

a

Is the price of an apple bought by them equal?

Li Min

$$\begin{array}{r} \text{RM } 1.40 \\ 10\overline{)\text{RM}14.00} \\ -\ 10 \\ \hline 40 \\ -\ 40 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

Reza

$$\begin{array}{r} \text{RM}1.40 \\ 6\overline{)\text{RM}8.40} \\ -\ 6 \\ \hline 24 \\ -\ 24 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

The price of an apple bought by them is equal.
The price of the apple is in proportion.

b What is the price of 9 oranges?

$$\begin{array}{r} \text{RM}0.90 \\ 6\overline{)\text{RM}5.40} \\ -\ 0 \\ \hline 54 \\ -\ 54 \\ \hline 00 \\ -\ 0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} {\scriptstyle 8} \\ \text{RM}0.90 \\ \times \qquad 9 \\ \hline \text{RM}8.10 \end{array}$$

The price of 9 oranges is **RM8.10**.

Daniel has RM10. He wanted to buy 7 pears. Does he have enough money?

- Guide pupils to use the unitary method to find the value of an item.
- Emphasise that the concept of the unitary method is finding the value of an item of the same unit.

2

a What is the price of 9 m of similar curtains?

the price of 1 m of curtains

$$\begin{array}{r} \text{RM } 6 \\ 6\overline{)\text{RM}36} \\ -\ 36 \\ \hline 0 \end{array}$$

the price of 9 m of curtains

$$\begin{array}{r} \text{RM } 6 \\ \times\quad 9 \\ \hline \text{RM } 54 \end{array}$$

The price of 9 m of similar curtains is **RM54**.

b What is the length of a curtain bought with RM84?

Method 1

RM6 → 1 m

RM84 → RM84 ÷ RM6

$$\begin{array}{r} 14 \\ 6\overline{)84} \\ -\ 6\downarrow \\ \hline 24 \\ -\ 24 \\ \hline 0 \end{array}$$

Method 2

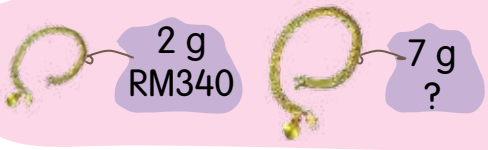
1 m → RM6

4 m → 4 × RM6 = RM24

10 m → 10 × RM6 = RM60

14 m → RM24 + RM60 = RM84

A curtain of **14 m** long can be bought with RM84.



What is the price of a bracelet?

TEACHER'S NOTES

- Provide more questions involving daily situations such as volume of liquids and mass of objects.

3

There are 70 pieces of biscuits in 2 jars. What is the number of biscuits in 5 similar jars?

Step 1

2 jars → 70 pieces

1 jar → 70 pieces ÷ 2

$$\begin{array}{r} 35 \\ 2\overline{)\,70} \\ -\,6\downarrow \\ \hline 10 \\ -\,10 \\ \hline 0 \end{array}$$

Step 2

1 jar → 35 pieces

5 jars → 5 × 35 pieces

$$\begin{array}{r} {\scriptstyle 2} \\ 35 \\ \times\ \ 5 \\ \hline 175 \end{array}$$

There are **175 pieces** of biscuits in 5 similar jars.

4

FACTS AT A GLANCE

The frequency of heart rate of an adult while resting is 360 times in 5 minutes.

Source: https://poradymoms.netlify.com/kecantikan-dan-kesih5/kadar-jantung-normal1753

What is the frequency of heart rate of an adult while resting in 3 minutes?

Step 1

5 minutes → 360 times

1 minute → 360 times ÷ 5

$$\begin{array}{r} 72 \\ 5\overline{)\,360} \\ -\,35\downarrow \\ \hline 10 \\ -\,10 \\ \hline 0 \end{array}$$

Step 2

1 minute → 72 times

3 minutes → 3 × 72 times

$$\begin{array}{r} 72 \\ \times\ \ 3 \\ \hline 216 \end{array}$$

The frequency of heart rate of an adult while resting in 3 minutes is **216 times**.

TEACHER'S NOTES

- Carry out group activities involving questions about daily situations and facts such as pulse rates and card printing.

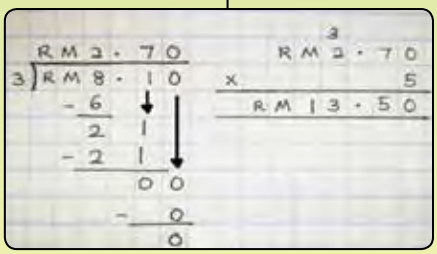
FUN EXPLORATION

Construct a suitable chart or mind map involving proportion and solve the problems as shown in the following example.

PROPOSITION

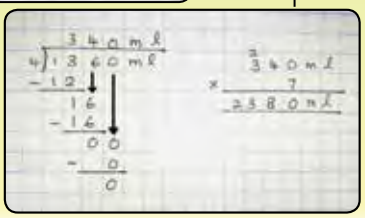
MONEY

3 kg of rambutan is RM8.10. Find the price of 5 kg of rambutan.



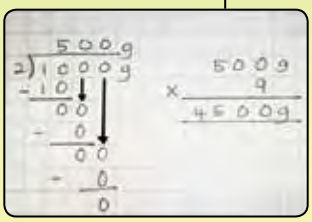
VOLUME OF LIQUID

The volume of 4 bottles of shampoo is 1 360 mℓ. Find the volume of 7 similar bottles of shampoo.



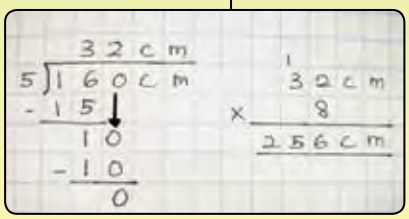
MASS

2 cakes have a mass of 1 000 g. Find the mass of 9 similar cakes.



LENGTH

The length of 5 ribbons is 160 cm. Find the length of 8 similar ribbons.



TEST YOURSELF

1 My sister bought 4 m of linoleum. The total price is RM32.

a) What is the price of 6 m of similar linoleum?

b) If the price is RM96, what is the length of the linoleum?

2

the mass of 6 boxes is 180 g

a) What is the mass of 5 similar cereal boxes?

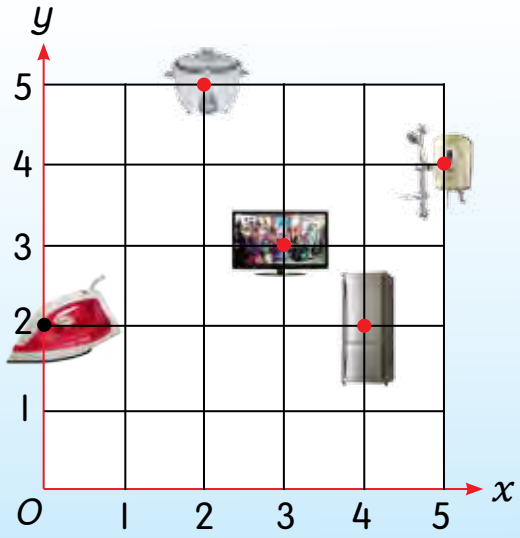
b) If the mass is 300 g, how many cereal boxes are there?

TEACHER'S NOTES

- Prepare a few more questions to help pupils construct charts or mind maps in the Fun Exploration activity.

SOLVE THE PROBLEMS

1 The following are the positions and the prices of five electrical appliances.



Appliance	Price
Rice cooker	RM160
Television	RM1 750
Iron	RM110
Water heater	RM220
Refrigerator	RM1 800

Ayub paid RM2 020 for two electrical appliances. State the items he bought and the coordinates of the items.

• Understand the problem •

The price of two items is RM2 020. State any two items and its coordinates.

• Plan the strategy •

- Total up any two items for RM2 020.
- To write the coordinates of the two items, look at the x-axis first, then the y-axis.

• Solve •

television RM1 750 + water heater RM220 → total price RM1 970 ✗

refrigerator RM1 800 + water heater RM220 → total price RM2 020 ✓

• Check • RM2 020 – RM220 = RM1 800

The two items bought are the **refrigerator** and the **water heater**. The coordinate of the **refrigerator** is (**4**, **2**). The coordinate of the **water heater** is (**5**, **4**).

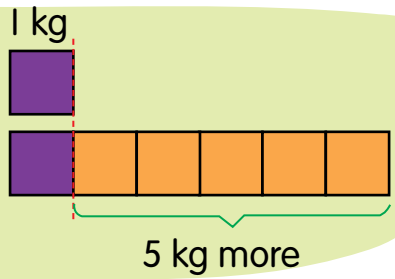
TEACHER'S NOTES
- Guide pupils to solve the problems using the estimation method.
- Encourage pupils to calculate mentally using simple values.

2 Halim bought a durian weighing 1 kg. Rekha bought a durian weighing 5 kg more than the mass of Halim's durian. What is the ratio of the mass of Halim's durian to the mass of Rekha's durian?

• Understand the problem •

The mass of Halim's durian is 1 kg.
The mass of Rekha's durian is 5 kg more than the mass of Halim's durian.
Find the ratio of the mass of Halim's durian to the mass of Rekha's durian.

• Plan the strategy •



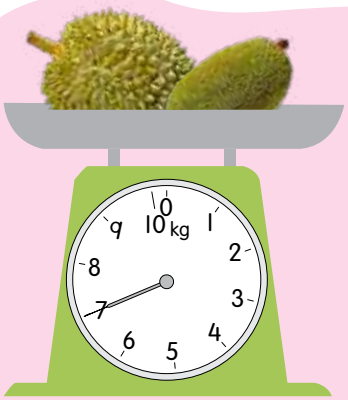
• Solve •

Calculate the mass of Rekha's durian, 1 kg + 5 kg = 6 kg.

The ratio of the mass of Halim's durian to the mass of Rekha's durian is

The ratio of 1 to 6
1 : 6

The ratio of the mass of Halim's durian to the mass of Rekha's durian is **1 : 6**.



Rekha bought a jackfruit too. The picture shows the mass of both the durian and jackfruit. State the ratio of the mass of the jackfruit to the mass of the durian.

TEACHER'S NOTES

• Guide pupils to state the ratio using pictures or representations.

3 The price of exercise books at three bookshops are as follows:

Bookshop A

4 books
RM4.80

Bookshop B

2 books
RM2.60

Bookshop C

3 books
RM3.30

Adira wanted to buy 12 exercise books. Which bookshop would she choose? Justify your answer.

Solve

Bookshop A

```
      RM1.20
4 ) RM4.80
  - 4
    08
  - 8
     00
  - 0
     0

     RM1.20
  ×      12
    240
+  1200
  RM14.40
```

Bookshop B

```
      RM1.30
2 ) RM2.60
  - 2
    06
  - 6
     00
  - 0
     0

     RM1.30
  ×      12
    260
+  1300
  RM15.60
```

Bookshop C

```
      RM1.10
3 ) RM3.30
  - 3
    03
  - 3
     00
  - 0
     0

     RM1.10
  ×      12
    220
+  1100
  RM13.20
```

Adira chose **bookshop C** because the price is the **cheapest**.

Can we calculate using this method? Discuss.

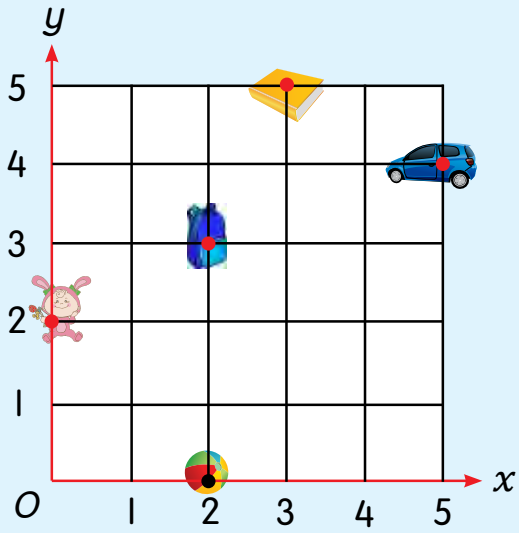
Bookshop A	Bookshop B	Bookshop C
3 × RM4.80 = ?	6 × RM2.60 = ?	4 × RM3.30 = ?

TEACHER'S NOTES

- Carry out simulation activities such as sale activities using play money and objects.
- Instil values of being thrifty and saving money.

TEST YOURSELF

1 A Cartesian plane shows items sold in Goh's Shop. The price of the items are shown in the following table.



Item	Price
	RM24.00
	RM8.50
	RM6.00
	RM17.80
	RM9.00

a State the coordinate of:

i ball. ii toy car.

b Amalina bought the items situated at the coordinates of (0, 2), (3, 5) and (2, 3). Calculate the total payment.

2 The picture shows Shahir's pet cat. Chan has 3 cats more than Shahir. What is the ratio of the number of Shahir's cats to the number of Chan's cats?

3 The following table shows the length of blue and green wooden planks.

Colour of wooden plank	Blue	Green
Length of wooden plank	1 m	200 cm longer than the blue wooden plank

State the ratio of the length of the blue wooden plank to the length of the green wooden plank.

4 Victor drives his car at a regular speed of 240 km in 3 hours. What is the distance he travelled in 5 hours at the same speed?

TEACHER'S NOTES

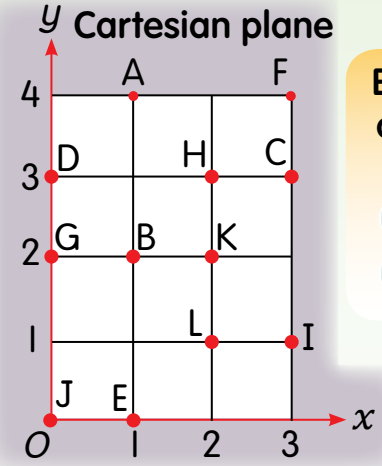
- Prepare questions similar to question 3 involving measurements to enhance pupils' understanding.

MIND RIDDLE

Tools/Materials 12 question cards, 12 letter cards, Cartesian plane, player cards, and score cards.

Participants 3 pupils and a referee.

Cartesian plane



Example of letter cards

A J D F

Player's card

Name: Rifana				
Letter	Coordinate	Correct/ Wrong	Answer	Correct/ Wrong
F	(3, 4)	✓	1 : 9	✓
D	(3, 0)	✗	30 km	✓
A	(1, 4)	✓	RM420	✗
J	(0, 0)	✓	1 : 4	✓

Score card

Player \ Round	1	2	3	4	Score
Rifana	10	5	5	10	30
Karl	10	10	10	0	40
Melly	0	10	5	10	25

Example of question cards

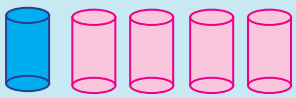
F

String	R	T
Length	1 m	900 cm

State the ratio of the length of string R to the length of string T.

A The price of 5 kg of fish is RM30. Calculate the price of 7 kg of fish.

J



State the ratio of the number of blue cylinders to the number of red cylinders.

D A bus is moving at 90 km an hour. Calculate the distance travelled by the bus in 20 minutes at the same speed.

How to play

1. Each player picks a letter card.
2. Identify the coordinate and write it on the player's card.
3. Answer the question card which matches the letter.
4. Write the answer on the player's card.
5. The referee will check the answer. Every correct answer will get 5 marks.
6. Repeat steps 1 to 5 until all four rounds are completed.
7. The player with the highest score wins.

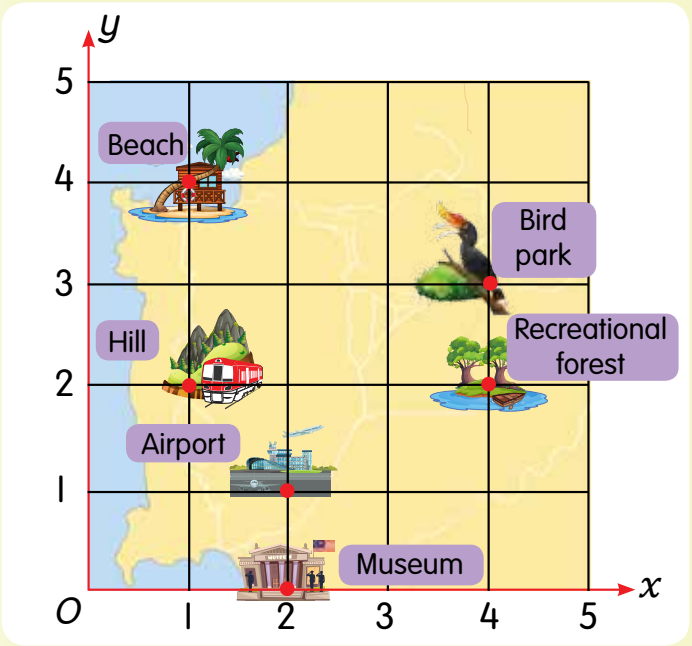
TEACHER'S NOTES

- Ask players to determine their turns before they start the game.
- Prepare new question cards to enhance pupils' understanding.

7.1.1, 7.1.2, 7.2.1, 7.3.1, 7.4.1

MIND CHALLENGE

1 The map on the Cartesian plane shows several places of interest.



Place	Coordinate
Beach	
Bird park	
Museum	
	(1, 2)
	(2, 1)
	(4, 2)

(a) Coordinate (0, 0) is at the intersection of ____ and ____, named the ____.

(b) Based on the Cartesian plane, complete the table above.

2 Mark the coordinate points (1, 1), (5, 1) and (3, 6) on a Cartesian plane. Then, connect all the points. Name the shape formed.

3

Box	P	Q	R	S
Number of marbles	1	2	3 times the number of Q	7 more than P

Based on the table above, state the ratio of:

(a) the number of marbles in box P to the number of marbles in box R.

(b) the number of marbles in box P to the number of marbles in box S.

4 The mass of 4 chocolate bars is 0.656 kg. Calculate the mass of 15 similar chocolate bars.

TEACHER'S NOTES

- Prepare a Cartesian plane for question 2 in the Mind Challenge.
- Carry out quizzes and games involving coordinates, ratio, and proportion to enhance pupils' understanding.

7.1.1, 7.1.2, 7.2.1, 7.3.1

KPM

5 Solve the problems.

(a) The table shows the distance travelled by Erik from town R to town U through town S and town T.

Route	Distance
Town R to town S	1 km
Town S to town T	99 km
Town T to town U	900 km

State the ratio of:

(i) the distance travelled from town R to town S to the distance from town R to town T.

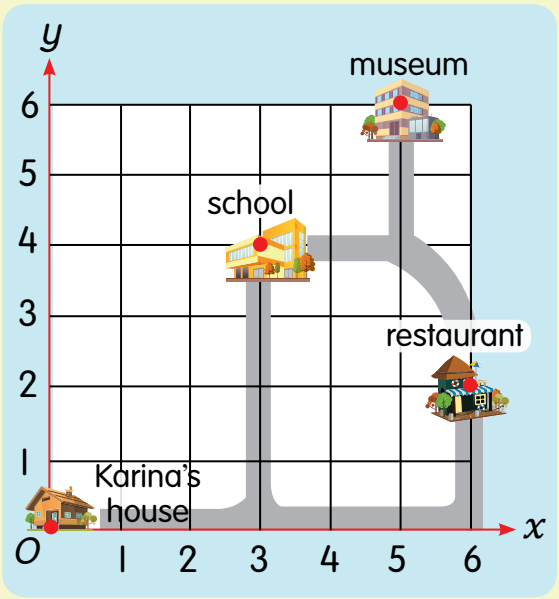
(ii) the distance travelled from town R to town S to the distance from town R to town U.

(b) Rashidah uses 2 kg of flour to bake 100 pieces of *apam balik*. What is the mass of flour needed to bake 300 pieces of *apam balik*?

(c) There are 66 *bidara* fruits in 3 packets. Each packet has the same number of *bidara* fruits. How many fruits are there in 11 similar packets?

(d) The Cartesian plane shows the position of a school, museum, restaurant, and Karina's house. The table shows the rate of taxi fares from Karina's house.

Place	Taxi fare
restaurant	RM3.50
museum	RM4.80
school	RM2.20



Karina paid RM8.30 for a one-way taxi fare on Friday and Saturday. Where did Karina go? State the coordinates of the places.

(e) What is the ratio of length of one side of a square to its perimeter?

• Discuss the application of simple proportion in daily situations.

DATA HANDLING

CONSTRUCT PICTOGRAPHS AND BAR CHARTS

Beyblade Collection

Name	Number of Beyblade
Akim	12
Ben	10
Chin	14
Don	12

Steps to construct a pictograph.

1 Draw 2 columns and 4 rows. Write the names on the left column.

Akim	
Ben	
Chin	
Don	

2 Determine the key for the pictograph. ● represents 2 Beyblades.

Akim 12 ÷ 2 = 6
Ben 10 ÷ 2 = 5
Chin 14 ÷ 2 = ▭
Don 12 ÷ 2 = ▭

3 a Draw the symbols on the right column.

b Write the key and title.

SCAN THIS

Beyblade Collection of Four People ← title

Akim	●●●●●● ← symbol
Ben	●●●●●
Chin	●●●●●●●
Don	●●●●●●

● represents 2 Beyblades ← key

TEACHER'S NOTES

- Get a set of data related to the number of members of sports houses in the class. Guide pupils to construct a pictograph following the steps above in groups.
- Get the data through various methods such as observation and interviews to construct a pictograph.

2

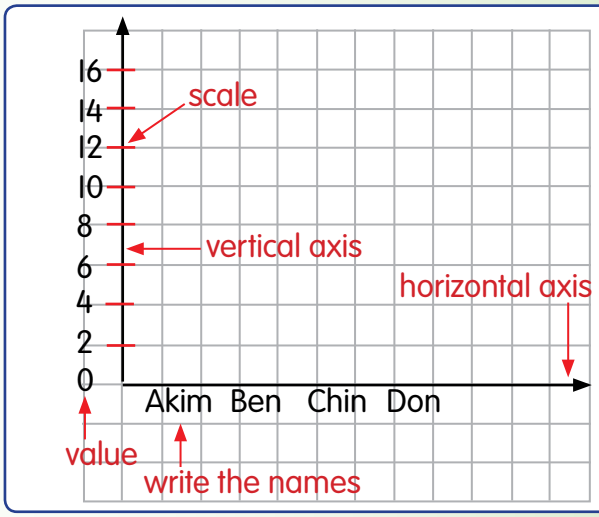
Let's use squared paper to create a vertical bar chart for the data.

Beyblade Collection

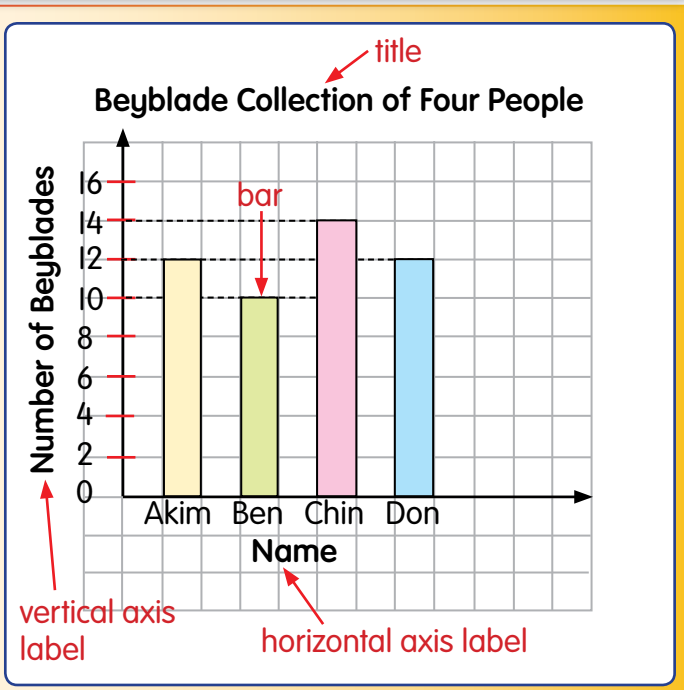
Name	Akim	Ben	Chin	Don
Number of Beyblades	12	10	14	12

Steps to construct a bar chart.

1. Draw the horizontal and vertical axis.
2. On the horizontal axis, write the names.
3. On the vertical axis, mark the scale and label with suitable values to represent the number of Beyblades.



4. Draw and colour the bars to represent the number of Beyblades.
5. Write the title of the bar chart.
6. Label the number of Beyblades on the vertical axis.
7. Label the names on the horizontal axis.



Change the horizontal and vertical axis positions. Now construct a horizontal bar chart.

- Get a set of data regarding favourite drinks, attendance, and favourite colours.
- Guide pupils to construct horizontal and vertical bar charts following the steps above. Provide a lot of practises on determining the suitable values for the scale.

TEACHER'S NOTES

FUN EXPLORATION

Tools/Materials Data and MS Excel software.

Participants 4 pupils in a group.

Steps

1. Scan the QR Code to see the example on constructing a bar chart using MS Excel software.
2. Each group constructs a bar chart and a pictograph based on any two of the information given below.

SCAN THIS

a ***Kuih* Sales at the Canteen**

Kuih	Number of *Kuih*
Curry puff	55
Steamed bun	65
Doughnut	50
Keria	45

b **Bowling Competition**

Player	Score
Tira	120
Qira	160
Sheila	140
Mei Hua	150

c Four sports houses participate in a cross-country competition. Kenari, Tiung, Enggang, and Merpati collect 180 points, 220 points, 240 points, and 200 points respectively.

3. Print two copies of your bar chart and pictograph. Display one copy at the mathematics corner. Keep the other copy in the group's folio.

TEST YOURSELF

Four groups compete in a debate competition. Bijak, Pintar, Cerdik, and Intelek teams secured 80 points, 90 points, 75 points, and 85 points respectively.

Based on the information above, construct a:

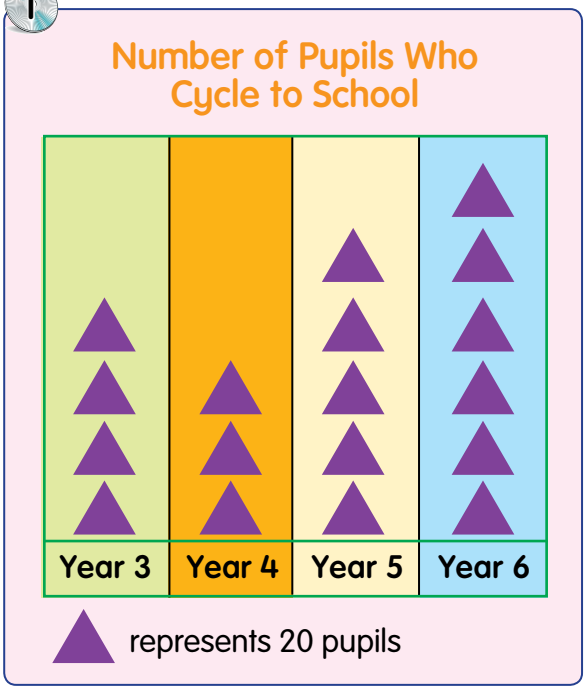
a pictograph. b vertical bar chart. c horizontal bar chart.

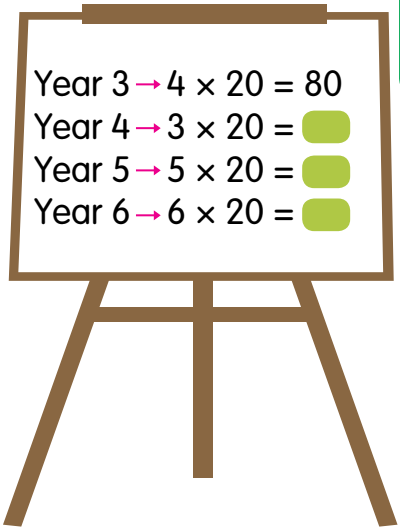
TEACHER'S NOTES

- Surf https://www.wikihow.com/Make-a-Bar-Chart-in-Word to learn how to construct bar charts using MS Word.
- Carry out a group activity to construct pictographs and bar charts using different data. Ask every group to present their work.

INTERPRET PICTOGRAPHS AND BAR CHARTS

1





(a) **80** pupils of **Year 3** cycle to school.

(b) **60** pupils of **Year 4** cycle to school, which is **the least**.

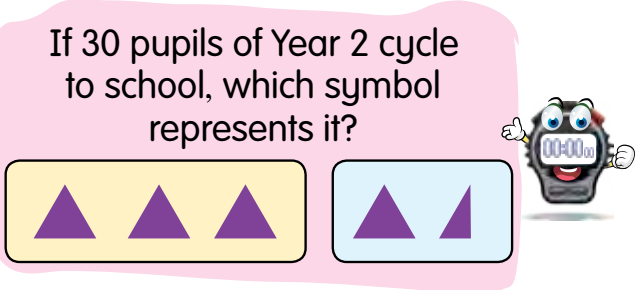
(c) **120** pupils of **Year 6** cycle to school, which is **the most**.

(d) Year 3 pupils who cycle is _____ more than Year 4 pupils.

(e) **The total number of pupils** who cycle to school is _____.

(f) **The total number of Level 2** pupils who cycle to school is _____.

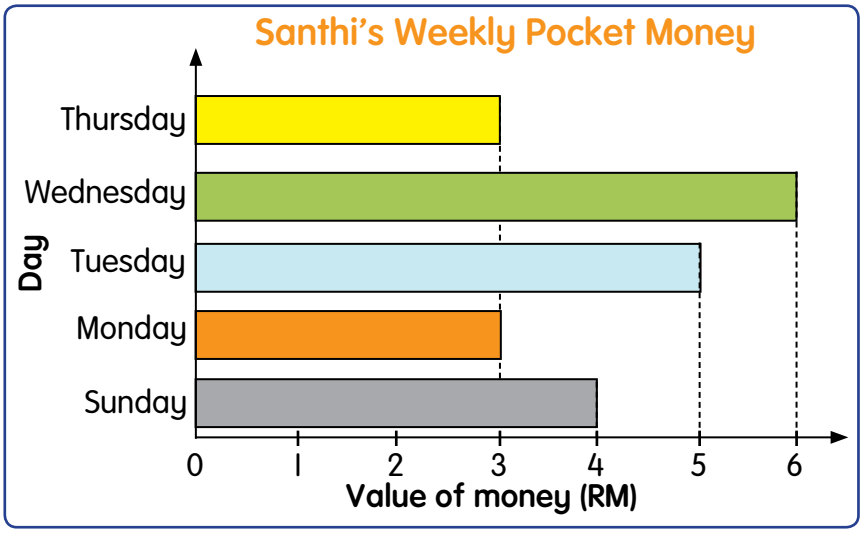
If 30 pupils of Year 2 cycle to school, which symbol represents it?

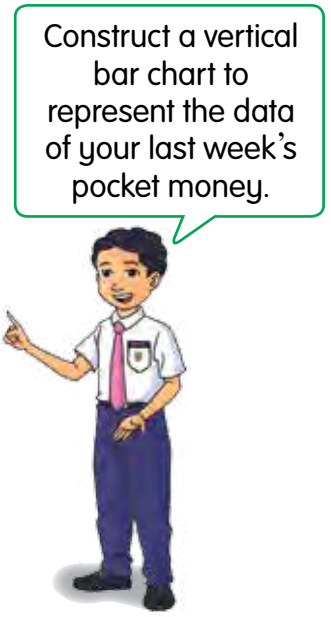


TEACHER'S NOTES

- Prepare a pictograph. Ask every group to discuss and give three interpretations based on the pictograph. Every group presents their work and display them at the mathematics corner.

2





a Santhi received **RM4** pocket money on **Sunday**.

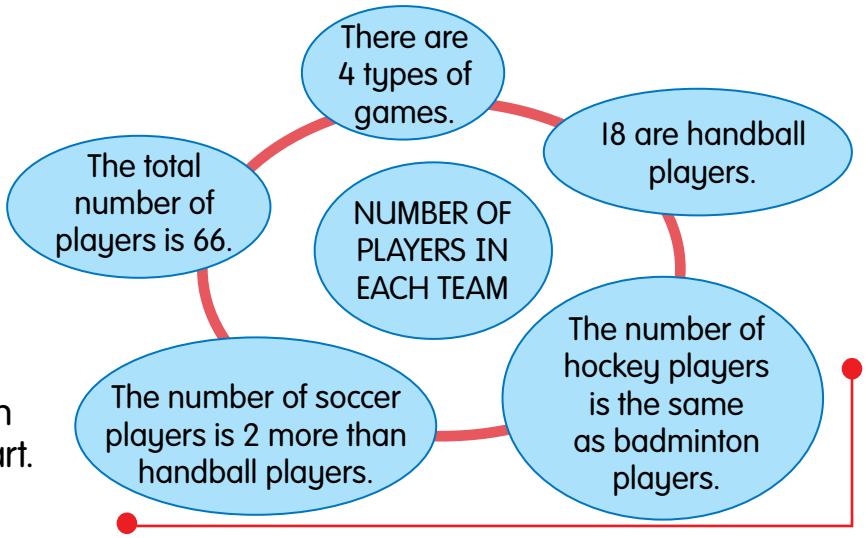
b On _____, Santhi received the **most** pocket money of **RM6**.

c Santhi received the **same amount of pocket money** on _____ and _____.

d Santhi's **total amount of pocket money** for **five days** is _____.

e **The difference** between Santhi's pocket money on _____ and _____ is _____.

Construct a bar chart based on the information given. Write three information from the bar chart.



TEACHER'S NOTES

- Ask every group to construct a bar chart based on the information given.
- Every group will exchange their bar charts, carry out a few interpretations based on the information, and present their work.

TEST YOURSELF

1 Observe the pictograph and complete the sentences.

Pencil Sales at School's Cooperative

Monday	//////
Tuesday	///
Wednesday	////
Thursday	//
Friday	//

/ represents 10 pencils

(a) On Tuesday, ____ pencils are sold.

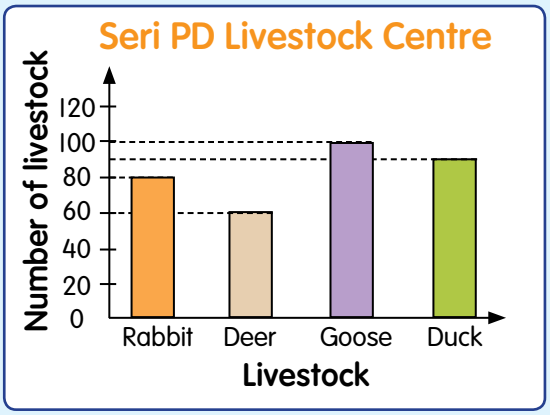
(b) 50 pencils are sold on ____.

(c) The same number of pencils are sold on ____ and ____.

(d) The total number of pencils sold is ____.

(e) The difference between the sales on Wednesday and Thursday is ____.

2 Complete the blank boxes based on the bar chart.



(a) There are ____ deer reared.

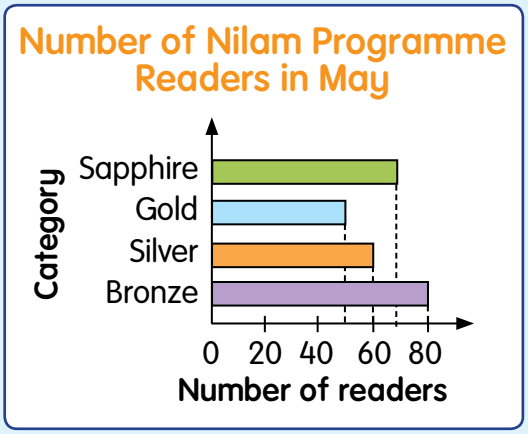
(b) There are 90 ____ reared.

(c) The most livestock reared is ____.

(d) The total number of livestock reared is ____.

(e) The difference in number between ____ and ____ reared is 40.

3 Observe the bar chart and answer the questions.



(a) What is the number of readers from the gold category?

(b) Calculate the total number of readers in the Nilam Programme.

(c) Calculate the difference between the number of readers of sapphire and bronze categories.

(d) If 30% of the total number of readers are Year 4 pupils, find the number of Year 4 pupils.

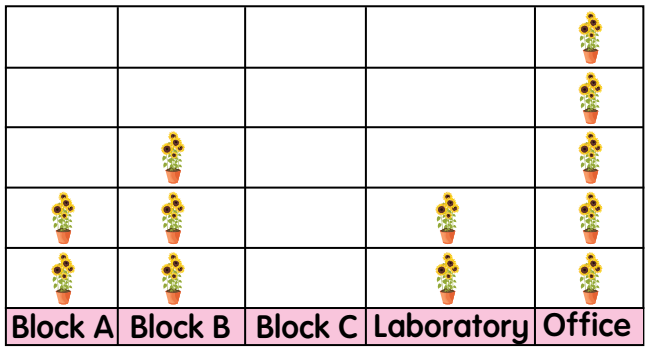
TEACHER'S NOTES

- Register at https://www.education.com/worksheet/article/reading-bar-graph-traveling/ to download, modify, and print the worksheets provided as enrichment for pupils.

SOLVE THE PROBLEMS

1 The incomplete pictograph shows the number of flower plants in a school area. How many symbols represent the flower plants at Block C if there are 80 flower plants in total?

Number of Flower Plants in the School Area



represents 5 flower plants

Understand the problem

- The total number of flower plants is 80.
- One symbol represents 5 flower plants.
- Find the number of symbols representing flower plants at Block C.

Plan the strategy

Block A	Block B	Block C	Laboratory	Office
2 × 5 = 10	3 × 5 = 15		2 × 5 = 10	5 × 5 = 25

80

Solve

$$5\overline{)80}\quad 16$$
$$-5\downarrow$$
$$30$$
$$-30$$
$$0$$

Total number of symbols: 16

Existing symbols:
2 + 3 + 2 + 5 = 12

Number of symbols for Block C:
16 – 12 = 4

Check

10 + 15 + ▢ + 10 + 25 = 80

60 + ▢ = 80

▢ = 20

$$5\overline{)20}\quad 4$$
$$-20$$
$$0$$

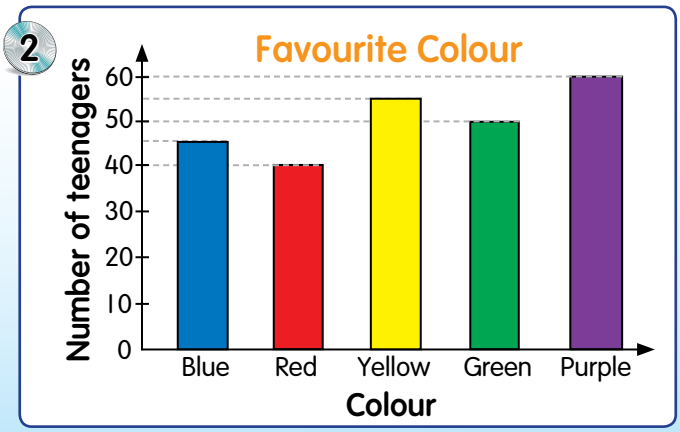
The number of symbols that represent the flower plants at Block C is **4**.

Block A receives 10 more flower plants. Calculate the difference between the number of flower plants at Block A and the laboratory.

TEACHER'S NOTES

- Vary the questions using the provided data such as the percentage of trees in the field compared to all trees and the difference between the number of flower plants in several blocks.

2



The bar chart shows the favourite colours of a group of teenagers. What is the percentage of teenagers who favour red?

Understand the problem

- The number of teenagers for each colour:
  - blue 45
  - red 40
  - yellow 55
  - green 50
  - purple 60
- Calculate the percentage of teenagers who favour red.

Solve

total number of teenagers : $45 + 40 + 55 + 50 + 60 = 250$

percentage of teenagers who favour red $= \frac{\text{number of teenagers who favour red}}{\text{total number of teenagers}} \times 100\%$

$= \frac{40}{250} \times 100\%$

$= \frac{400}{25}\%$

$= 16\%$

$$\begin{array}{r} 16 \\ 25\overline{)\,400} \\ -\,25\downarrow \\ \hline 150 \\ -\,150 \\ \hline 0 \end{array}$$

Check

$16\% \times 250 = \frac{16}{100} \times 250$

$= \frac{4\,000}{100}$

$= 40$

The percentage of teenagers who favour red is **16%** .

44 girls favour yellow. What is the percentage of boys who favour yellow?

TEACHER'S NOTES

- Vary the problems such as finding differences and fractions based on the bar chart above.

TEST YOURSELF

1 Zikri is completing a pictograph of the number of books read by four of his friends. A total of 48 books was read.

a How many 📕 represents the number of books read by Raveena?

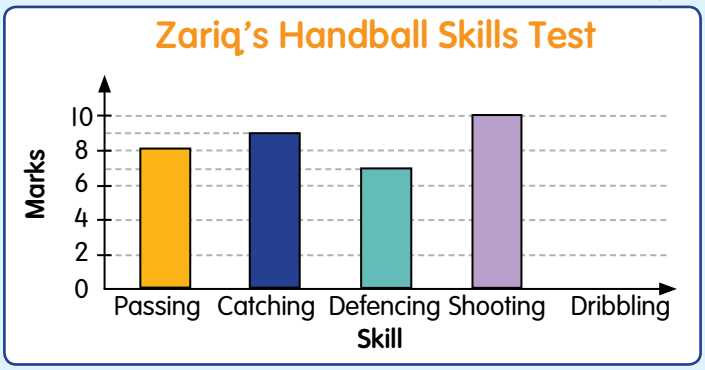
b Calculate the percentage of books read by Sherry.

Number of Books Read

Sherry	📕 📕 📕 📕
Qalisha	📕 📕 📕 📕 📕
Swee Ping	📕 📕 📕 📕
Raveena	

📕 represents 3 books

2 The incomplete bar chart below shows Zariq's score in a handball skills test for the selection of school players.



The MAIN requirements to become a school player:
- pass the skills test
- obtain more than 45 marks

Is Zariq qualified to be chosen as a school player if he obtained 8 marks in the dribbling test?

MIND RIDDLE Task

1 In groups, collect data on the number of siblings for 5 pupils from other classes (each group selects different classes).

2 Based on the data obtained, construct a bar chart.

3 Based on the bar chart constructed, write several interpretations. For example:

a ____ pupils have 3 siblings.

b The most number of siblings is ____.

c The least number of siblings is ____.

4 Present and display your group work.

TEACHER'S NOTES
- Surf https://www.superteacherworksheets.com/pictograph.html and http://www.commoncoresheets.com/BarGraphs.php for additional exercises.

8.1.1, 8.2.1

MIND CHALLENGE

1 Construct a pictograph and answer the questions.

NDS Sports Store sold 10 balls in January, 16 balls in February, 12 balls in March, and 10 balls in April.

a What is the number of balls sold in the first two months?

b Calculate the difference in the number of balls sold in February and April.

c Calculate the total sales of balls in the four months.

2 Construct a bar chart and answer the questions.

Syahir has 30 pieces of stamps. Francis has 15 pieces of stamps more than Syahir. Rishi's stamps are 10 pieces lesser than Francis. Xin Feng has 10 pieces of stamps more than Syahir.

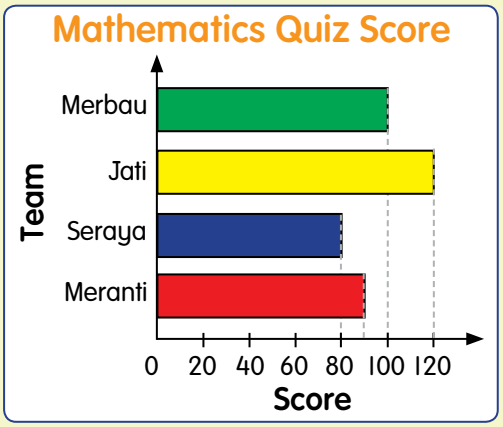
a How many stamps do Francis, Rishi, and Xin Feng have?

b Calculate the total number of stamps.

c What is the percentage of Syahir's stamps?

3 Solve the problems.

a



The bar chart shows the scores of four teams in a quiz. Each team is given 15 additional points.

i List down the teams that obtained the latest score of more than 100.

ii Is the latest total score equal to 400? Explain.

b The incomplete pictograph represents the number of fish caught by 5 participants in a fishing competition. Adin is declared as the winner.

i Estimate the number of fish caught by Adin.

ii The total number of fish caught is 34. If Adin caught 12 fish, prove that the number of fish caught by Sam and Tim are the same. Explain.

Number of Fish Caught

Sam	🐟🐟
Adin	
Tim	
Ram	🐟🐟🐟🐟
Ong	🐟🐟🐟

🐟 represents 2 fish

TEACHER'S NOTES

- Ask pupils to get a set of data from the data coordinator teacher and the resource centre teacher. Carry out an activity of constructing pictographs and bar charts based on the set of data, as well as interpreting the information.

8.1.1
8.1.2
8.2.1

MIND TWISTER

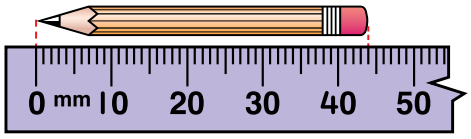
A Choose the correct answer.

1 

State the ratio of the number of squares to the number of triangles.

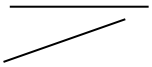
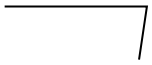
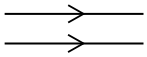
A 1 : 2 B 1 : 3
C 1 : 4 D 1 : 5

2 What is the length of the pencil, in mm?

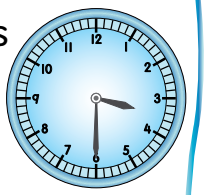


A 10 mm B 44 mm
C 54 mm D 64 mm

3 Which figure shows perpendicular lines?

A  B 
C  D 

4 The clock face shows the time Lela starts doing her homework. At 4:45 p.m., Lela completed her homework. How long did she take to do her homework?



A 15 minutes
B 45 minutes
C 1 hour 15 minutes
D 1 hour 45 minutes

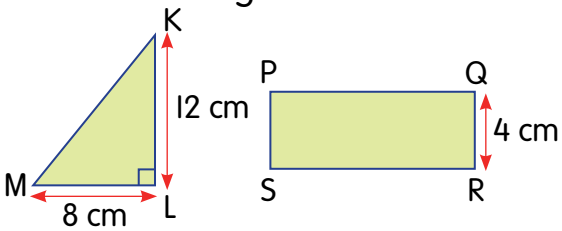
5 The mass of 4 similar books is 2 kg 240 g. What is the mass of 3 books?

A 1 kg 120 g B 1 kg 680 g
C 4 kg 480 g D 8 kg 960 g

6 Puan Kavitha left Kuala Lumpur for Ipoh at 10:50 in the morning. The journey took 3 hours 25 minutes. What time did Puan Kavitha arrive in Ipoh?

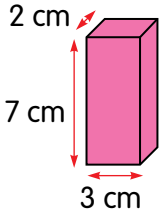
A 1405 hours B 1415 hours
C 1505 hours D 1515 hours

7 The figure shows a triangle KLM and a rectangle PQRS.



The area of KLM and PQRS are the same. What is the length of PQ?

A 8 cm B 12 cm
C 16 cm D 24 cm

8 

Calculate the volume, in cm^3, of the cuboid.

A 14 cm^3 B 21 cm^3
C 28 cm^3 D 42 cm^3

B Answer the following questions.

1 Complete these.

a) 34 hours = ____ day ____ hours

b) 9 weeks 5 days = ____ days

c) 7 decades 8 years = ____ years

d) 2 years 5 months = ____ months

e) 5 centuries 3 years = ____ years

2 Complete these.

a) 7 cm 3 mm = ____ mm

b) 2 km 50 m = ____ m

c) 169 mm = ____ cm ____ mm

d) 5 480 m = ____ km ____ m

3 Calculate.

a) 14 decades 6 years + 3 decades 8 years
= ____ decades ____ years

b) 4 weeks 5 days + 2 weeks 3 days
= ____ weeks ____ day

c) 3 × 12 hours
= ____ day ____ hours

d) 41 years ÷ 6
= ____ years ____ months

4 Solve these.

a) 5 cm 2 mm + 3 mm + 4 cm 8 mm = ____ mm

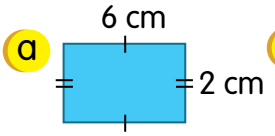
b) 3 kg 60 g – 835 g + 2 kg 74 g = ____ g

c) 7 ℓ 45 mℓ + ____ mℓ – 2 930 mℓ = 6 080 mℓ

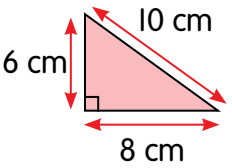
d) 2 × 24 kg 380 g ÷ 5 = ____ g

5 Find the perimeter of the following shapes.

a)

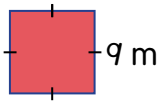


b)

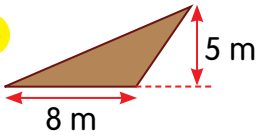


6 Find the areas of the following shapes.

a)



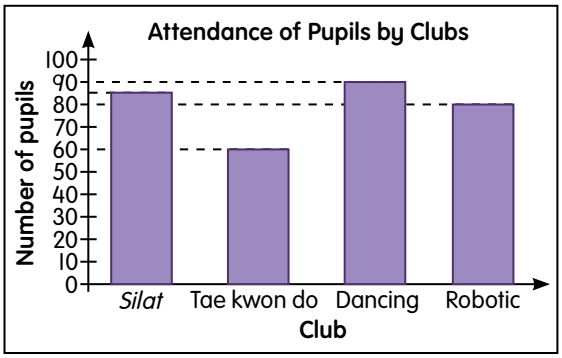
b)



7 Complete the table.

	Length	Width	Height	Volume of cuboid
a)	4 cm	3 cm	5 cm	
b)	2 m	4 m		80 m^3

8 The bar graph shows the attendance of pupils by clubs.



a) What is the total number of pupils in the four clubs?

b) The four clubs have a total number of 350 members. How many members are absent?

C Solve the following problems.

1. Farah Ann's gymnastic training starts at 4:45 in the evening and ends at 6:15 in the evening.
   a. State 4:45 in the evening in the 24-hour system.
   b. What is the duration of Farah Ann's gymnastic training?

2. Mr Kumar has been working in a factory for 25 months.
   a. State the duration, in years and months, that Mr Kumar has worked in the factory.
   b. Mr Kumar works from 8:00 a.m. to 5:00 p.m.. Calculate the duration of Mr Kumar's working hours for 5 days.

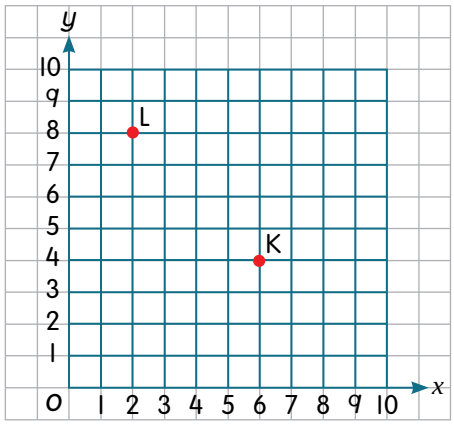
3. At 9:35 a.m., a bus and a car depart from town M to town N. The journey takes 2 hours 40 minutes to reach town N.
   a. What time does the car reach town N?
   b. The bus arrives at town N 1 hour 15 minutes later than the car. What time does the bus arrive at town N?

4. The table shows the length of two types of wires.

Wire	Length
Blue	28 cm 6 mm
Green	4 cm 9 mm longer than the blue wire

   a. Calculate the length, in cm and mm, of the green wire.
   b. Joseph used 32 cm 8 mm of the green wire to make handicraft. Calculate the length, in mm, of the remaining green wire.

5. The Cartesian plane shows the positions of points K and L.



   a. Write the coordinates of point:
      i. K ii. L
   b. Mark the following points:
      i. A (0, 6) ii. B (4, 3)
   c. Mark three points to form a right-angled triangle.

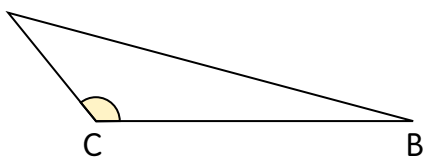
6 The diagram shows the volume of water in three barrels.

P	Q	R
5 ℓ 250 mℓ	30 ℓ	less 6 ℓ 125 mℓ than Q

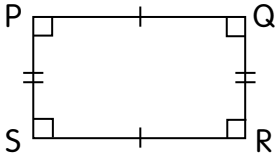
(a) Calculate the total volume of water, in ℓ and mℓ, in the three barrels.

(b) The water in barrel P was poured equally into 5 pails. What is the volume of water in 2 pails?

7 The diagram below shows a triangle and a rectangle.

(a) 

Name the angle C in the triangle.

(b) 

(i) Name the line which is parallel to line PQ.

(ii) Name the lines which are perpendicular to line PS.

8 The table shows the mass of coconut milk sold in two days.

Day	Mass
Saturday	38 kg 800 g
Sunday	15 kg 250 g less than Saturday

(a) What is the total mass of coconut milk, in kg and g, sold on Saturday and Sunday?

(b) On Monday, the mass of coconut milk prepared was 28 kg 350 g. The coconut milk was put equally into 7 containers. What is the mass of coconut milk in 4 containers?

9 The pictograph shows the number of laptops sold in three months. The sales in July is not shown.

Laptop Sold

April	4
May	6
June	7
July	

represents 3 laptops

The total number of laptops sold in 4 months is 60.

(a) How many laptops were sold in July?

(b) The price of a laptop is RM1 260. What is the total price of laptops sold in May and June?

GLOSSARY

acute angle	Angle with less than 90°.
angle	Space between two meeting of straight lines.
area	The measurement of two dimensional surface that it covers.
area of the base	Area of the bottom of a three dimensional space.
ascending order	Numbers arranged from the smallest to the largest number. E.g. 1, 2, 3, 4, ...
axis	Horizontal or vertical line on the graph and are placed at right angles to each other.
bar chart	A frequency diagram using rectangles of equal width to represent information or data.
base	The bottom surface of an object.
budget	An estimation of income/revenue or expenditure for a set period of time. Budget is known as budgetary.
cash	Direct payment whether in ringgit or in sen when buying things or using services.
column	Vertical array of numbers or series of cells in a chart or table.
compare	Stating the similarities or differences between two or several values, quantities, and objects.
coordinate	The ordered pairs of numbers which determine a position of points in the x-axis and y-axis.
cube	Three dimensional shapes with six square surfaces.
cubic centimetre	Measurement unit for volume.
cuboid	Three dimensional shapes with six rectangular surfaces.
currency	Measurement unit for money. Different countries have different currencies.
decimal	A number which represents a fraction with denominator 10, 100 or 1 000.
decompose/partition	The process of separating numbers according to the place value or digit value.
descending order	Numbers arranged from the largest to the smallest number. E.g. 20, 19, 18, ...
difference	Differences in quantity or value between two groups of objects or values.
digit	Numbers from 0 to 9 that can form another number.
distance	Length between objects.
duration	The length of time that an event lasts.
equilateral triangle	A triangle in which all three sides have the same length.
estimation	An approximation of a quantity.
even numbers	Any integer that can be divided exactly by two.
financial goal	Goal to be achieved in terms of finance.
formula	A method or calculation procedures used to get an answer.
horizontal axis	Horizontal number line in graph.
hour	Measurement unit for time.
improper fraction	A fraction where the denominator is smaller than the numerator.

isosceles triangle	A triangle in which two sides have the same length and the angle opposite the equal sides are equal.
mental arithmetic	Performing quick mathematical calculation mentally.
mixed numbers	A number represented by a whole number and a proper fraction.
mixed operations	A combination of two or more mathematical operations.
obtuse angle	Angle with more than 90°.
odd numbers	Any integer when divided by two gives one as the remainder.
parallel lines	Two or more straight lines which do not meet no matter how far extended and the lines are always the same distance apart.
pattern	List of numbers or objects arranged in sequence or series that repeats.
payment instrument	Any electronic tools to make payment for any services or purchasing of goods.
perimeter	Total distance around the edges of two dimensional shapes.
perpendicular	The characteristic of two lines which meet or cross each other to form a right angle.
perpendicular axis/ vertical axis	Vertical number line in graph.
perpendicular lines	Two lines which meet or cross each other to form a right angle.
pictograph	A diagram consisting of pictorial symbols representing certain quantities or group of data.
poligon	A closed two dimensional figure bounded by three or more straight sides.
proper fraction	A fraction where the denominator is larger than the numerator.
proportion	Mathematical expression to show the relationship between two quantities or values with the same ratio.
ratio	Comparison between a measurement or value to another measurement or value.
receipt	A document acknowledging that a person has received money or made payment of goods.
right angle	90° angle.
right-angled triangle	A triangle with three sides and a right angle (90°) in it.
rounding off	A process to determine the value of a number using the place value.
scalene triangle	A triangle in which all three sides have different lengths.
square centimetre	Measurement unit for area.
transaction	Business transaction between two parties, e.g. a seller and a buyer or a banker and a customer.
trial and error method	Various methods/strategies used to find the correct answer.
unknown	An unknown quantity written in symbol or letters.
volume	Space occupied by solid figure, liquid, and gas.
width	Distance between two shorter sides.
x-axis	Horizontal axis in graph.
y-axis	Vertical axis in graph.
12-hour system	System which divide time into two sections, a.m. for morning and p.m. for evening.
24-hour system	Time notation to indicate the day runs from midnight to midnight and is divided into 24 hours.

ANSWERS

UNIT 1: NUMBERS AND OPERATIONS

Mind Teaser pg. 3
83 614, 84 316, 81 364. Accept any reasonable answers.
Mind Teaser pg. 5
83 090
Mind Teaser pg. 16
9
Mind Teaser pg. 18
6 000 + 4 000 = 10 000 or
4 985 + 5 372 = 10 357 or
any other reasonable answers.
Mind Teaser pg. 19
89 068
Mind Teaser pg. 22

p	*q*
30	67
46	51
54	43

Accept any reasonable answers.

Mind Teaser pg. 24
18 950
Mind Teaser pg. 26
37 058
Mind Teaser pg. 35
6
Mind Teaser pg. 38
5 720, 96 000÷1 000, 9 600÷100/960 ÷ 10, 608. Accept any reasonable answers.
Mind Teaser pg. 41
504
Mind Teaser pg. 43
63 297 ÷ 100 = 632 baki 97
Mind Teaser pg. 45
Both questions have the same answer, 13 830.
Mind Teaser pg. 47
3 640
Mind Challenge pg. 63
1. a. ninety-two thousand one hundred and forty-five
   b. sixty thousand one hundred and seventy-four
   c. fifty-one thousand and ninety-six
   d. 35 016 e. 40 062 f. 100 000
2. a. thousands, 9 000 b. hundreds, 200 c. ten thousands, 70 000
3. a. 100, 3 b. 95 304 c. 1 thousands, 0 hundreds d. 80 132
4. even numbers : 1 898, 4 100, 5 012 odd numbers : 1 401, 2 053, 3 245
5. a. descending order : 43 730, 43 370, 43 300, 43 070
   ascending order : 43 070, 43 300, 43 370, 43 730
   b. descending order : 69 128, 68 993, 65 590, 61 540
   ascending order : 61 540, 65 590, 68 993, 69 128
6. a. 5 500 b. 20 litres
7. a. 14 074, 14 081 b. 20 731, 20 713 c. 62 264, 64 264
8. a. i. 40 000 ii. 30 000 iii. 70 000 iv. 100 000
   b. 49 768, 52 983. Accept any reasonable answers.
9. a. less than b. more than c. more than d. less than
10. a. 41 899 b. 21 660 c. 76 020 d. 21 753
11. a. 84 574 b. 3 478 c. 46 085 d. 27 030 e. 100 f. 24
12. a. 10 728 b. 40 c. 305 d. 580 e. 20 remainder 76 f. 57 remainder 148
13. a. 5 897 b. 14 620 c. 42 310 d. 25 287
14. a. 1 426 b. 69 369 c. 28 d. 693
15. a. 7 b. 7 c. 11 d. 7
16. a. 57 b. 8 925 c. i. 22 558 ii. 43 318 d. i. 35 850 ii. 99 483
    e. i. 168 ii. 42 f. 19 657 g. i. 2 617 ii. 7 851 h. 25

UNIT 2: FRACTIONS, DECIMALS, AND PERCENTAGES

Mind Teaser pg. 70
$\frac{9}{8}$, $1\frac{1}{8}$
Mind Teaser pg. 79
$\frac{9}{10} - \frac{3}{10} - \frac{1}{10} = \frac{1}{2}$ or $\frac{4}{5} - \frac{1}{10} - \frac{1}{5} = \frac{1}{2}$ or any other reasonable answers.
Mind Teaser pg. 82
$3\frac{1}{2} - \frac{3}{4} + \frac{3}{8} = 3\frac{1}{8}$
Mind Teaser pg. 83
$\frac{3}{4}$ of 12 = 9
or any other reasonable answers.
Mind Teaser pg. 87
18.5 + 8.221 = 26.721 or 6.329 + 20.392 = 26.721
or any other reasonable answers.
Mind Teaser pg. 95
$\frac{1}{5}$ = 20% and $\frac{2}{10}$ = 20%
Mind Challenge pg. 103
1. a. $2\frac{2}{5}$ b. $1\frac{5}{9}$ c. $4\frac{1}{7}$ d. $3\frac{3}{4}$ e. $6\frac{2}{3}$ f. $4\frac{3}{8}$
2. a. $\frac{9}{7}$ b. $\frac{31}{9}$ c. $\frac{43}{8}$ d. $\frac{63}{10}$ e. $\frac{31}{3}$ f. $\frac{111}{2}$
3. a. $\frac{5}{9}$ b. $1\frac{7}{12}$ c. $1\frac{7}{12}$ d. $6\frac{1}{10}$ e. $5\frac{20}{21}$ f. $2\frac{2}{3}$
4. a. $\frac{1}{2}$ b. $3\frac{2}{7}$ c. $1\frac{2}{15}$ d. $1\frac{8}{9}$ e. 2 f. $3\frac{1}{3}$
5. a. $1\frac{2}{5}$ b. $6\frac{7}{8}$ 6. a. 4 b. $4\frac{4}{7}$ c. $2\frac{1}{2}$ d. $4\frac{2}{3}$
7. a. 35 m b. 72 kg c. 168 ℓ
8. a. 8.59 b. 192.983 c. 146.328 d. 28.8
9. a. 6.63 b. 2.078 c. 0.352 d. 2.078
10. a. 8.56 b. 697.2 c. 129.258 d. 630.8 e. 194.2 f. 52 730
11. a. 5.2 b. 103.42 c. 1.528 d. 3.42 e. 0.603
12. a. 80% b. 95% c. 72% d. $\frac{7}{100}$ e. $\frac{17}{25}$ f. $\frac{93}{100}$
13. a. 53% b. 30% c. 30% 14. a. $5\frac{7}{10}$ ℓ, no
    b. i. 4.03 m ii. 0.27 m

UNIT 3: MONEY

Mind Teaser pg. 107
West Coast of The United States, Taiwan, and China
Mind Teaser pg. 109
RM63 869.59
Mind Teaser pg. 111
RM9 553 – RM4 865 + RM2 312 = RM7 000
Mind Challenge pg. 134
1. a. RM68 259.30 b. RM34 474.90 c. RM83 384.20 d. RM55 239.45 e. RM75 085
   f. RM58 513 g. RM1 734.20 h. RM33 886.40 i. RM87 472.80 j. RM65 707.20
2. a. RM97 610.25 b. RM42 000 3. RM61 122.26 4. RM27 171.05 5. RM19 600
6. United States of America – Dollar, Great Britain – Pound Sterling, Saudi Arabia – Riyal
7. a. prepaid card b. e-wallet, credit card, debit card, cheque

Mind Twister pg. 135
Section A
1. B 2. A 3. D 4. D 5. C 6. D 7. B 8. D 9. C 10. B 11. D 12. C 13. D 14. C

Section B
1. a. ten thousands b. 80 000 + 600 + 50 + 3
2. a. (i) 19 632, 21 369, 31 962, 63 291, 91 263 (ii) 91 263, 63 291, 31 962, 21 369, 19 632
   b. 40 000
3. Approximately 130 mℓ or any other reasonable answers.
4. a. 27 982, 28 982, 29 982, 30 982, 31 982 b. The number pattern increases by thousands.
5. 102, 104, 106, 108, 110 or any other reasonable answers.
6. 59 765 or any other reasonable answers.
7. a. 91 682 b. 15 600 c. 22 932 d. 148 555 8. ***P*** = 16 497 ***Q*** = 15 497
9. a. (i) $1\frac{2}{3}$ (ii) $2\frac{5}{7}$ b. (i) $\frac{23}{9}$ (ii) $\frac{49}{10}$
10. a. $1\frac{2}{7}$ b. $5\frac{13}{15}$ 11. a. $\frac{1}{7}$ b. $3\frac{1}{4}$
12. a. $7\frac{7}{20}$ b. $\frac{20}{21}$ c. $5\frac{1}{9}$ 13. a. $\frac{8}{9}$ b. $1\frac{1}{5}$
14. a. 524.928 b. 56.819 c. 0.26 d. 9.66
15. a. 683.4 b. 42.184 c. 7.082 d. 23.54
16. 15% 17. $\frac{37}{100}$ 18. 15% 19. RM43 733

Section C
1. a. 17 795 b. 15 910
2. No. Each buyer will only get 40 saplings.
3. a. 250 boxes b. 120 oranges 4. RM350 5. RM3 120 6. 11.68 km 7. 2.45 ℓ
8. $1\frac{9}{20}$ kg 9. a. 23 245 b. RM2 880 10. a. 6.4 kg b. 0.475 kg/475 g
11. a. prepare a daily, weekly and monthly budget b. Yes, Rishi's goal would be achieved.

UNIT 4: TIME

Mind Teaser pg. 146
10 decades = 100 years = 1 century
10 centuries = 1 000 years = 1 millenium
Mind Teaser pg. 155
8 days – 2 days 16 hours – 5 hours = 5 days 3 hours
Mind Teaser pg. 156
1 decade 8 years
Mind Teaser pg. 160
9 and 7
Mind Teaser pg. 163
21 centuries
Mind Challenge pg. 168
1. a. 0845 hours b. 2220 hours c. 0355 hours d. 2333 hours
2. a. 6:15 a.m. b. 11:10 a.m. c. 4:12 p.m. d. 10:55 p.m.
3. 3 hours 29 minutes 4. 30 minutes
5. a. 2 days 4 hours b. 82 hours c. 6 weeks 4 days d. 74 days
   e. 2 years 2 months f. 68 months g. 59 years h. 1 century 72 years

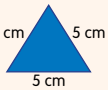
6. 60 hours 7. 190 days
8. a. 171 hours b. 16 weeks 6 days c. 5 years 5 months d. 204 years
e. 6 days 13 hours f. 2 weeks 1 day g. 58 months h. 77 years
9. a. 17 days 12 hours b. 10 weeks 2 days c. 24 years 2 months d. 15 centuries 18 years
e. 2 days 16 hours f. 4 years 3 months g. 1 decade 3 years h. 4 decades 3 years
10. a. (i) 216 hours (ii) 3 days b. (i) 21 years 1 month (ii) 13 years 3 months
c. (i) 12:45 p.m. (ii) 2:45 p.m. (iii) 3 hours
d. (i) 7 decades 6 years (ii) No. I am 9 years 6 months old.

UNIT 5: LENGTH, MASS, AND VOLUME OF LIQUID

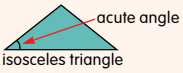
Mind Teaser pg. 173
30 mm
Mind Teaser pg. 180
14 000 m – 7 600 m = 5 750 m
Mind Teaser pg. 189
999 mℓ
Mind Challenge pg. 197
1. a. mm b. km c. mm d. km 2. a. 10 mm b. 50 mm
3. 7 km, accept any reasonable answers.
4. a. 6 cm 5 mm b. 84 000 m c. 132 mm d. 9 km 83 m e. 7 018 m f. 50 cm 4 mm
5. a. 26 cm 4 mm b. 62 km 353 m c. 6 cm 3 mm d. 33 km 720 m
e. 77 cm 4 mm f. 32 km 760 m g. 62 mm h. 12 km 485 m
6. a. 33 kg 448 g b. 12 kg 110 g c. 34 ℓ 218 mℓ d. 19 365 mℓ
7. a. 36 cm 8 mm b. 10 km 950 m c. 32 km 534 m d. 552 g e. 9 ℓ 350 mℓ

UNIT 6: SPACE

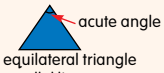
Mind Teaser pg. 200
6, obtuse angle
Mind Teaser pg. 205

Equilateral triangle 

Regular pentagon 

Accept any reasonable answers.
Mind Teaser pg. 208
Area R = $\frac{1}{2}$ × 2 units × 6 units = 6 units²
Area S = $\frac{1}{2}$ × 4 units × 3 units = 6 units²
The area of triangle R and triangle S are equal.
Mind Teaser pg. 210
24 m³
Mind Challenge pg. 214
1. a. 

isosceles triangle
b. 

right-angled triangle
c. 

equilateral triangle
d. 

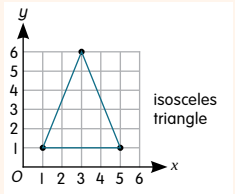
scalene triangle
2. a. parallel lines b. not both
c. not both d. perpendicular lines
3. a. perimeter = 20 cm, area = 25 cm² b. perimeter = 22 cm, area = 24 cm² c. perimeter = 36 m, area = 48 m²
4. a. 1 000 cm³ b. 180 cm³ c. 84 m³
5. a. (i) 9 m (ii) 144 m² b. 32 cm

UNIT 7: COORDINATES, RATIO, AND PROPORTION

Mind Teaser pg. 216
K (4, 2)
Mind Teaser pg. 217
(3, 6)
Mind Teaser pg. 220
a. 1 : 8 b. 1 : 4
Mind Challenge pg. 231
1 a. *x*-axis, *y*-axis, origin

b.

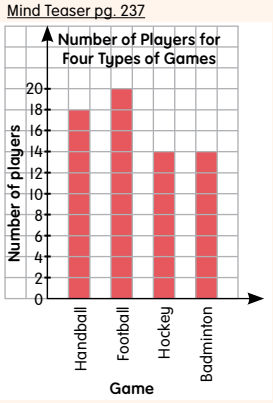
Place	Coordinate
Beach	(1, 4)
Bird park	(4, 3)
Museum	(2, 0)
Hill	(1, 2)
Airport	(2, 1)
Recreational forest	(4, 2)

2. 

3. a. 1 : 6 b. 1 : 8 4. 2.46 kg
5 a. (i) 1 : 100 (ii) 1 : 1 000 b. 6 kg c. 242 d. Restaurant (6, 2) Museum (5, 6) e. 1 : 4

UNIT 8: DATA HANDLING

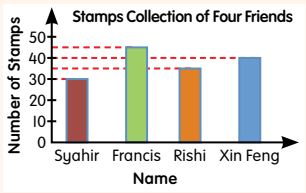
Mind Teaser pg. 237



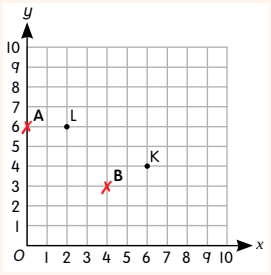
Mind Challenge pg. 242
1. Balls Sold by NDS Sports Store

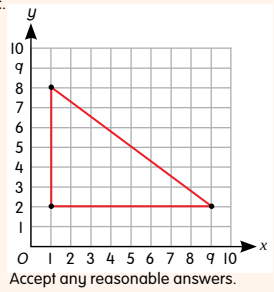
January	●●●●●
February	●●●●●●●●
March	●●●●●●
April	●●●●●

● represents 2 balls

2. 

a. 26 balls b. 6 balls c. RM2 400 a. 120 stamps b. 150 stamps c. 20%
3. a. (i) Merbau, Jati, and Meranti
(ii) No, the latest total score is 450.
b. (i) 9 or more (ii) 34–18–12 = 4, proved.

Mind Twister pg. 243
Section A
1. B 2. B 3. C 4. C 5. B 6. B 7. B 8. D
Section B
1. a. 1 day 10 hours b. 68 days c. 78 years d. 29 months e. 503 years
2. a. 73 mm b. 2 050 m c. 16 cm 9 mm d. 5 km 480 m
3. a. 18 decades 4 years b. 7 weeks 1 day c. 1 day 12 hours d. 6 years 10 months
4. a. 103 mm b. 4 299 g c. 1 965 mℓ d. 9 752 g 5. a. 16 cm b. 24 cm
6. a. 81 m² b. 20 m² 7. a. 60 cm³ b. 10 m 8. a. 315 pupils b. 35 pupils
Section C
1. a. 1645 hours b. 1 hour 30 minutes
2. a. 2 years 1 month b. 45 hours
3. a. 12:15 p.m. b. 1:30 p.m.
4. a. 33 cm 5 mm b. 7 mm
5. a. (i) K (6, 4) (ii) L (2, 8)
b. 

c. 

Accept any reasonable answers.
6. a. 59 ℓ 125 mℓ b. 2.1 ℓ / 2 100 mℓ
7. a. obtuse angle b. (i) SR (ii) PQ and SR
8. a. 62 kg 350 g b. 16 kg 200 g
9. a. 9 b. RM49 140

RM22.30
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