3A3 Home Learning

Time

> 7·15 am —> 0715   8·50 pm —> 2050

Change the following 12 hour clock times to **24 hour clock times** :-

a	1·30 am		b	4·45 am		c	6 am
d	7·30 pm		e	2·15 pm		f	3 pm
g	6·15 am		h	8·20 am		i	2·10 am
j	7·50 am		k	midday			
l	12·45 am		m	12·45 pm			
n	9·15 pm		o	3·25 am			
p	8·20 pm		q	11·55 pm			
r	9·55 am		s	10·20 pm			

> 0830 —> 8·30 am   2040 —> 8·40 pm

Change the following 24 hour clock times to **12 hour clock times** :-

a	0140		b	1110		c	0925
d	1430		e	1740		f	2315
g	0245		h	1915		i	1310
j	1903		k	1200			
l	0630		m	0525			
n	1520		o	2355			
p	1935		q	0020			
r	0758		s	1147			
t	2030		u	2155.			

Timetables

https://youtu.be/IdgIbKnHWIQ video notes

How long is it from :-

a   2·15 pm to 6·15 pm

b   6 am to 11·30 am

c   noon to 7·30 pm

d   4·30 pm to 8·15 pm

e   5·45 am to 8·20 am

f   2·25 am to 5·10 am

g   0820 to 1125

h   1845 to 2010

i   1615 to 1905

j   2310 to 0200 (next day) ?

Here are the coach timetables for "Falkirk <—> John O'Groats".

Falkirk	<—> John O'Groats		
Falkirk	leave	0850	2155
Perth	arrive	0945	2250
	leave	0950	2255
Dunkeld	arrive	1015	2320
Pitlochry	arrive	1055	midnight
	leave	1205	0015
Newtonmore		1325	0135
Carrbridge		1403	0205
Inverness	arrive	1453	0300
	leave	1535	0300
John O'Groats	arrive	1755	0525

John O'Groats	<—> Falkirk		
John O'Groats	leave	0755	1955
Inverness		1035	2235
Carrbridge		1127	1127
Newtonmore	arrive	1155	midnight
	leave	1240	0005
Pitlochry		1320	0045
Dunkeld	arrive	1350	0115
	leave	1400	0115
Perth	arrive	1427	0146
	leave	1427	0210
Falkirk	arrive	1505	0335

a   How long does it take from Inverness to John O'Groats
    on each of the 0850 and the 2155 services from Falkirk ?

b   At what times do the coaches leave Newtonmore for Pitlochry ? (Use a.m. or p.m.).

c   Where will you have time for an early lunch on **each**
    of the **day time services** ? How long in each case ?

d   On the **night time services** – where will you have time
    for a comfort stop and for how long in each case ?

e   Which of the two evening services takes longer and by how much ?

f   If you dislike travelling by coach, but had to undertake a journey from John
    O'Groats down to Falkirk, which coach would you choose to take and why ?

A plane left Prestwick Airport at 2335 on Thursday.

It touched down in Gran Canaria at 0415 (*British time*) on Friday.

How long did the flight take ?

Here is part of a train timetable from Glasgow Central to Birmingham.

a If I can get to Glasgow Central for about 2:20 pm what is the 1st train I can catch to Birmingham ?

b How long would this train take to get me to Birmingham ?

c Unfortunately, I don't arrive in Glasgow till 2:50 pm.

How long must I wait for the next train ?

Glasgow Central [GLC] to Birmingham New Street [BHM]

Leaving	From	To	Arriving	Duration	Changes
14:00	Glasgow Central [GLC]	Birmingham New Street [BHM]	17:56	3h 56m	0
14:40	Glasgow Central [GLC]	Birmingham New Street [BHM]	18:55		1
16:00	Glasgow Central [GLC]	Birmingham New Street [BHM]	19:55	3h 55m	0
16:40	Glasgow Central [GLC]	Birmingham New Street [BHM]	20:55	4h 15m	1
17:40	Glasgow Central [GLC]	Birmingham New Street [BHM]		4h 10m	0

d When does the 5:40 pm train from Glasgow Central arrive in Birmingham ?

(Answer in 12 hour time notation)

https://corbettmaths.com/wp-content/uploads/2019/10/Time-Calculations-pdf.pdf
additional worksheet

Speed, distance, time

Watch the video tutorials and read the online notes then attempt the worksheets attached.

https://youtu.be/o8DSb6D-0fw - Video Notes

https://www.bbc.co.uk/bitesize/guides/z4swxnb/revision/1 - bitesize notes, video and questions

Converting Hours Mins – Decimal Times

Minutes => Decimals   =>

48 minutes is $\frac{48}{60}$ of an hour = 48 ÷ 60 = **0·8 hr.**

21 minutes is $\frac{21}{60}$ of an hour = 21 ÷ 60 = **0·35 hr.**

2 hr 54 mins is 2 + $\frac{54}{60}$ = 2 + (54 ÷ 60) = **2·9 hr**

Simple rule :-   "To change minutes to a decimal => divide by 60".

1. You may use a calculator to change the following to decimals :–

   (a)   36 minutes = $\frac{36}{60}$ hour (= 36 ÷ 60) = ... hour

   (b)   24 minutes   (c)   12 minutes   (d)   42 minutes   (e)   18 minutes

   (f)   54 minutes   (g)   15 minutes   (h)   9 minutes   (i)   33 minutes

2. Use your calculator to change these times to decimals giving your final answers correct to 2 decimal places :–

   (a)   50 minutes   (b)   13 minutes   (c)   20 minutes   (d)   58 minutes

   (e)   40 minutes   (f)   8 minutes   (g)   70 minutes   (h)   100 minutes

3. Use your calculator to change the following times to decimals :–

   (a)   4 hours 12 minutes = 4 + $\frac{12}{60}$ = 4 + (12 ÷ 60) = ... hours

   (b)   2 hr 36 mins   (c)   1 hrs 24 mins   (d)   3 hrs 33 mins   (e)   6 hrs 51 mins

   (f)   3 hr 18 mins   (g)   5 hrs 21 mins   (h)   4 hrs 20 mins   (i)   8 hrs 3 mins

Calculating Distance

Imagine you were travelling in a train at a steady speed of 80 km/hr.

can you see that :- in 1 hour, you travel   1 x 80 = 80 km ?

                    in 2 hours, you travel   2 x 80 = 160 km ?

                    in 3 hours, you travel   3 x 80 = 240 km ?

in other words :-   **Distance (travelled) = Speed x Time**

or, using letters :- $D_{istance} = S_{peed} \times T_{ime}$

1. Use the formula **D = S x T** to calculate how far the following people travel :-

    (a) jogging at 9 km/hr for 2 hours.   (b) driving at 40 km/hr for 3 hours.

    (c) walking at 5 km/hr for 3 hours.   (d) running at 22 km/hr for 3 hours.

    (e) flying at 210 m.p.h. for 4 hours.   (f) on a camel at 3 m.p.h. for 8 hours.

    (g) sailing at 18 m.p.h. for 3 hours.   (h) in a train travelling at 90 km/hr for $1\frac{1}{2}$ hours.

2. How far did the following travel :-

    (a) a train, travelling for $1\frac{1}{2}$ hours at an average speed of 80 m.p.h. ?

    (b) a $2\frac{1}{2}$ hour walk, at an average speed of 5 m.p.h. ?

    (c) a riverboat sail lasting $3\frac{1}{2}$ hours at an average speed of 20 m.p.h. ?

    (d) a helicopter flight for 30 minutes, at an average speed of 70 km/hr ?

    (e) a rocket ship journey of 10 hours 30 minutes, at an average speed of 3000 m.p.h. ?

3. What was the total distance travelled by each of the following :-

    (a) a missile, going at an average speed of 2400 m.p.h.,
    for $\frac{1}{4}$ of an hour ?

    (b) a hydrofoil, going at an average speed of 36 m.p.h., for quarter of an hour ?

    (c) a lorry, travelling at an average speed of 60 m.p.h. for 2 hours 15 minutes ?

    (d) a racing car, travelling at an average speed of 160 km/hr for 45 minutes ($\frac{3}{4}$ hour) ?

    (e) an elephant, walking at an average speed of 8 km/hr for 1 hour 45 minutes ?

    (f) a cross country runner, running at an average speed of 16 km/hr for $1\frac{3}{4}$ hours ?

Calculating Speed

Imagine you sailed 45 miles between two islands and it took 3 hours.

can you see that :- in 3 hours, you travellled   45 miles ?

=>   in 1 hour, you travelled   45 ÷ 3 = 15 miles

=>   this means your speed was   15 miles per hour.

in other words :-   **Speed = Distance ÷ Time**

or, using letters :- $S_{peed} = \dfrac{D_{istance}}{T_{ime}}$

1.   Use the formula $S = \dfrac{D}{T}$ to find the average speed of these journeys :-

   (a)   20 miles in 4 hours.   (b)   45 km in 9 hours.

   (c)   220 miles in 5 hours.   (d)   150 km in 2 hours.

   (e)   168 miles in 3 hours.   (f)   210 km in 6 hours.

2.   Calculate the average speed for each of these journeys (watch the units) :-

   (a)   50 km in 2 hours.   (b)   350 miles in 5 hours.

   (c)   300 metres in 10 seconds.   (d)   26 km in 4 hours.

   (e)   64 000 kilometres in 8 hours.   (f)   1500 metres in 30 seconds.

   (g)   75 feet in 2 seconds.   (h)   560 yards in 8 minutes.

3.   Calculate the average speed of the following :-

   (a)   A plane flies 1380 miles in 6 hours.

   (b)   A coach covers 420 kilometres in 7 hours.

   (c)   A train travels 40 miles in $\frac{1}{2}$ hour.

   (d)   A marathon runner covers 24 miles in 3 hours.

   (e)   A snail travels 195 cm in 3 hours.

   (f)   A 38 cm icicle melts away in 4 hours.

   (g)   A van travels 378 miles in 9 hours.

   (h)   A bus travels 549 miles in 9 hours.

Calculating Time

Imagine you flew 800 miles to Paris and the average speed of the plane was 200 miles/hour.

Can you see that :- to travel 200 miles takes 1 hour

=> to travel 800 miles takes 800 ÷ 200 = 4 hours

In other words :- **Time = Distance ÷ Speed**

or, using letters :-

$$T_{ime} = \frac{D_{istance}}{S_{peed}}$$

1. Use the formula $T = \frac{D}{S}$ to calculate the time taken for each of these :-

   (a) driving, 40 km at 40 km/hr.   (b) on a train, 360 miles at 60 m.p.h.

   (c) racing, 1800 m at 20 m/sec.   (d) cycling, 180 km at 30 km/hr.

   (e) swimming, 180 m at 3 m/sec.   (f) sliding, 45 metres at 15 m/sec.

   (g) flying at 250 km/hr for 1000 km.   (h) sailing at 15 m.p.h. for 75 miles.

2. Change these times into hours and minutes :-

   (a) $2\frac{1}{2}$ hours   (b) $5\frac{1}{4}$ hours   (c) $3\frac{3}{4}$ hours   (d) 6·5 hours

   (e) 8·25 hours   (f) 3·5 hours   (g) 1·75 hours   (h) 0·25 hours.

3. 1 hour 30 minutes is $1\frac{1}{2}$ or 1·5 hours;   4 hour 15 minutes is $4\frac{1}{4}$ or 4·25 hours.

   Change the following times to both fractions of an hour and decimal form :-

   (a) 2 hours 30 minutes.   (b) 4 hours 15 minutes.

   (c) 3 hours 45 minutes.   (d) 2 hour 15 minutes.

   (e) 5 hours 30 minutes.   (f) 8 hours 45 minutes.

4. Use the formula $T = \frac{D}{S}$ to calculate the time (*give answers in* **hrs and mins**).

   (a) driving, 90 km at 60 km/hr.   (b) sailing, 25 miles at 20 m.p.h.

   (c) flying, 350 km at 200 km/hr.   (d) running, 6 km at 12 km/hr.

   (e) train journey, 180 km at 80 km/hr.   (f) driving, 55 miles at 44 m.p.h.

   (g) missile fired at 1200 km/hr for 300 km.   (h) flying at 240 m.p.h. for 660 miles.

Time, Distance, Speed Problems

In the previous 3 exercises, you learned how to use three formulae to calculate the speed, the distance or the time for a journey.

The triangle opposite shows a simple way of remembering how to use each of the three formulae. Try to memorise its shape.

$$D = S \times T$$

$$S = \frac{D}{T} \qquad T = \frac{D}{S}$$

Example. David drove from his house to the coast, a distance of 135 miles.
It took him 2 hrs 15 mins to do so.
Calculate David's average **speed**.

From the triangle, we can see that $S = \dfrac{D}{T}$

$$\Rightarrow \quad S = \frac{135}{2hr\ 15min} = \frac{135}{2 \cdot 25} = 60 \text{ m.p.h.}$$
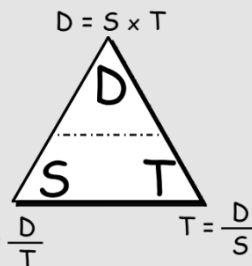
Remember – Time must always be entered into a calculator as a decimal

Minutes => Decimals =>

48 minutes is $\frac{48}{60}$ of an hour = 48 ÷ 60 = **0·8 hr**.

21 minutes is $\frac{21}{60}$ of an hour = 21 ÷ 60 = **0·35 hr**.

2 hr 54 mins is $2 + \frac{54}{60}$ = 2 + (54 ÷ 60) = **2·9 hr**

Simple rule :- "To change minutes to a decimal => divide by 60".

1. (a)

Distance	Speed	Time
360 km	?	8 hours

(b)

Distance	Speed	Time
120 miles	30 m.p.h.	?

(c)

Distance	Speed	Time
?	37 m.p.h.	3 hrs

(d)

Distance	Speed	Time
140 km	?	$3\frac{1}{2}$ hours

(e)

Distance	Speed	Time
?	20 m/sec	$3\frac{1}{2}$ secs

(f)

Distance	Speed	Time
225 miles	100 m.p.h.	?

2. Dougal drove for half an hour and covered a distance of 18 km.

   What was the Dougal's average speed ?

3. A helicopter flew 75 km at an average speed of 60 km per hour.

   For how long was the helicopter flying ?

4. When the McPherson's towed their caravan on holiday, they maintained an average speed of 38 km/hr. The trip took $3\frac{1}{2}$ hours.

   How far was it from home to their holiday resort ?

5. A GNER train left Edinburgh Waverly at 0915 and arrived at its destination at 1145.

   If the train travelled 175 miles, what was the its average speed ?

6. A hill walker is crossing the valley at an average speed of 8 km/hr.

   How long will it take him to walk the whole length of the valley which is 14 km long ?

7. A space station goes round the moon at an average speed of 3200 km/hr.

   It takes $3\frac{1}{2}$ hours to complete its orbit.

   What is the length of the space station's orbit ?
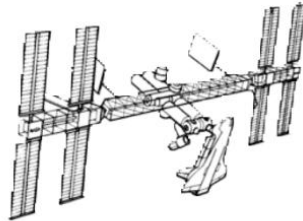
8. It took old Mrs Hubbard 30 minutes to walk the $1\frac{1}{2}$ miles to the post office to collect her pension.
   Now, with the aid of her electric chair, she can do it in 15 mins.

   (a) Calculate Mrs Hubbard's speed when she walked.

   (b) How much **faster** does she travel in the chair ?

9. The Halliday's took $4\frac{1}{2}$ days to sail round the islands in their cruiser.

   If they covered an average of 80 miles per day, what was the total distance they covered on their trip ?
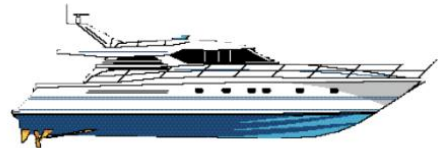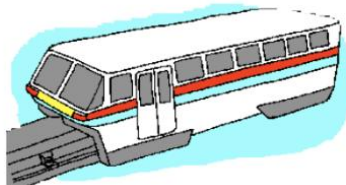
10. The monorail in Sydney travels at a speed of 250 metres per minute around its circular route.

    How long does it take to cover its route if the circuit is 2250 metres long ?

11. Of the three drivers below, who was travelling fastest ?

    - David, who covered 12 miles in 15 minutes .

    - Andy, who covered 9 miles in 10 minutes .

    - Brian, who covered 17 miles in 20 minutes .

12. A rally driver covered the first stage (105 km) in 1 hour 30 minutes, the second stage (100 km) in 1 hr 15 mins and the final stage (75 km) in three quarters of an hour.

    (a) Calculate his average speed for each of the 3 stages.

    (b) Calculate his average speed for the whole race.

Additional Worksheet – speed, distance, time – Corbett Maths
https://corbettmaths.com/wp-content/uploads/2018/09/Speed-Distance-Time-pdf.pdf

Area and perimeter

A really simple way of calculating the **area** of the rectangle is as follows :-

$$Area = length \times breadth$$

or **A = L × B** for short.

=> A = 5 × 3

=> A = 15 cm^2

breadth B

length L
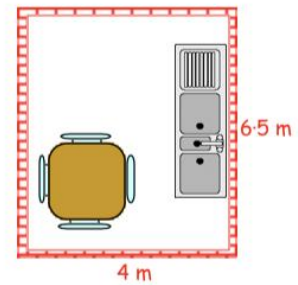

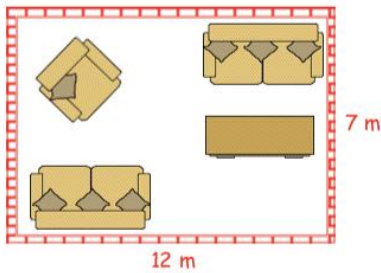a

3 m
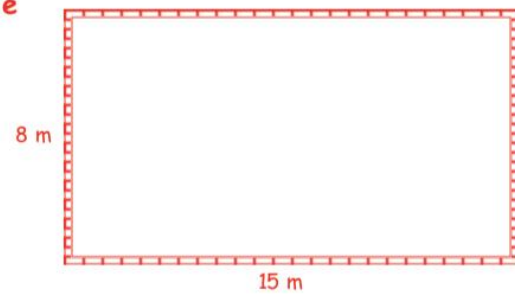
4 m

b

2·5 m

6 m

c

6·5 m

4 m

d

7 m

12 m

e

8 m

15 m
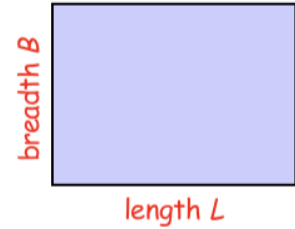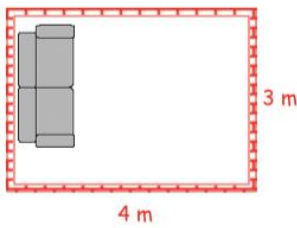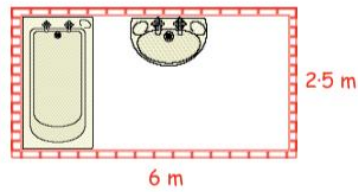
Calculate the **areas** of these rectangular fields, in **m^2** :-
(*You may use a calculator here*). ✓

a

16 m

20 m

b

15 m

18 m

c

20 m

25 m
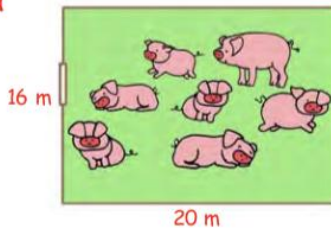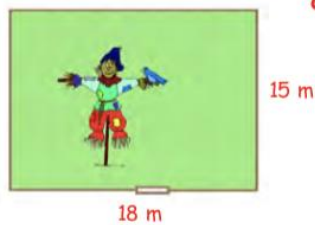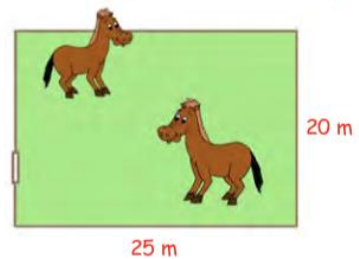
Perimeter

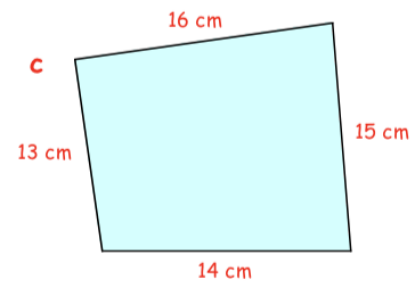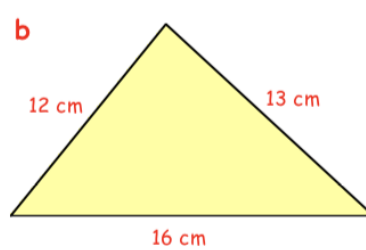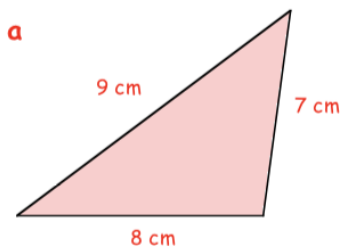The PERIMETER of a shape is defined as :-

the total distance around its edges - (*its outside*).

The **perimeter** of this shape is

P = 15 cm + 16 cm + 11 cm = **42 cm**

16 cm   11 cm

15 cm
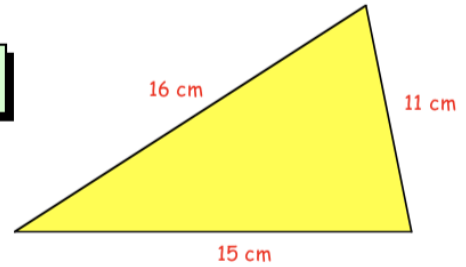
1. Calculate the **perimeter** of these shapes :-

a

9 cm

7 cm

8 cm

b

12 cm   13 cm

16 cm

c

16 cm

13 cm   15 cm

14 cm

d

5 m

8 m   8 m

7 m

e

3·7 mm   4·2 mm

6·3 mm   6·1 mm

5·9 mm

f

11 cm
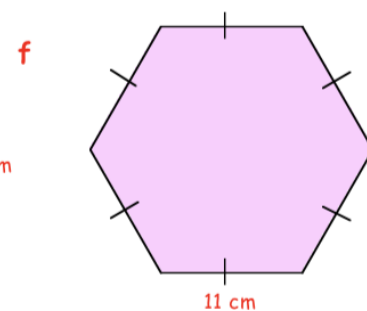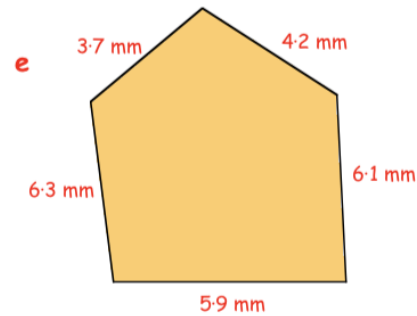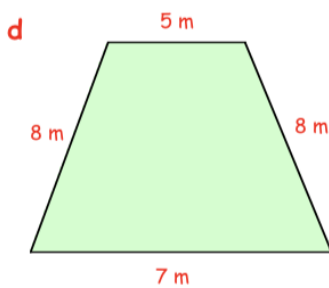
2. Calculate the **perimeter** of these rectangles :-

a

16 cm

23 cm

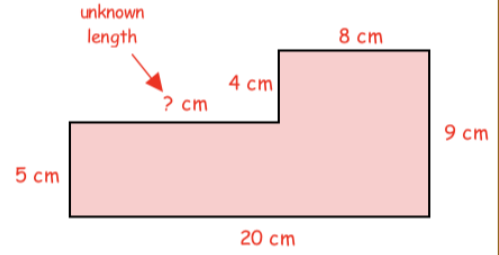**b**

13 m

9 m

c

square

5·2 cm
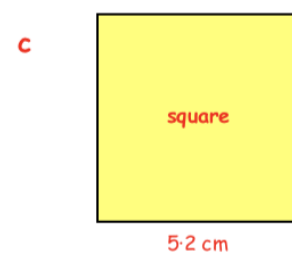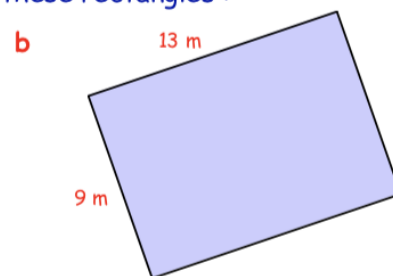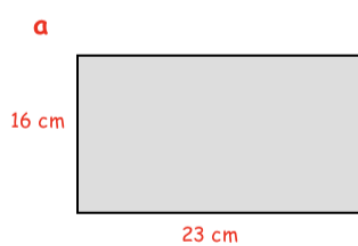
A **compound shape** is a shape that has been formed by joining together two or more shapes.

The unknown length here is :-

? = 20 cm – 8 cm = 12 cm.
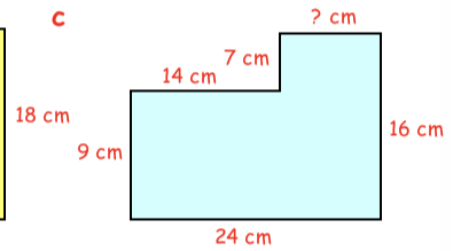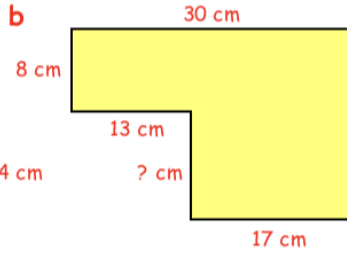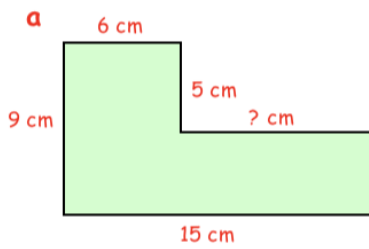
Perimeter is :- | P = (5 + 20 + 9 + 8 + 4 + 12) cm

P = **58 cm**

unknown length

? cm

4 cm

8 cm

9 cm

5 cm

20 cm

. For each shape here :- **(i)** find the missing length **(ii)** calculate the **perimeter**.

a
6 cm
5 cm
9 cm
? cm
15 cm

b
30 cm
8 cm
13 cm
? cm
4 cm
17 cm

c
? cm
7 cm
14 cm
18 cm
9 cm
16 cm
24 cm

. This time, there are several missing sides to find before calculating the **perimeter**.

a
6 cm
? cm
? cm
5 cm
16 cm

b
20 cm
8 cm
? cm
? cm
11 cm
10 cm
8 cm

c
? cm
? cm
8 cm
6 cm
6 cm
? cm
5 cm
17 cm
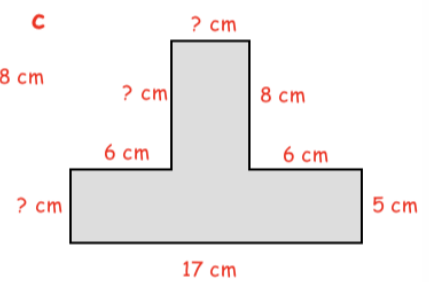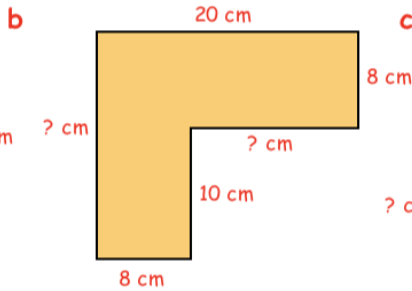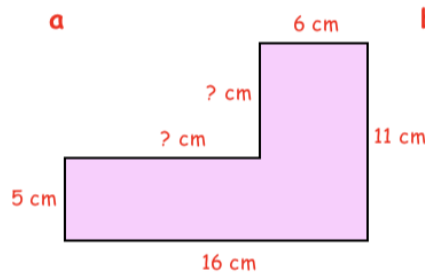
https://corbettmaths.com/wp-content/uploads/2013/02/perimeter-pdf2.pdf additional worksheet

Ratio & Proportion

We can use **ratios** to compare two different quantities.

Example :-

This picture shows 3 hotdogs and 2 pizzas.

We say that "the ratio of hotdogs to pizzas" is 3 to 2, or for short :-

hotdogs : pizzas = **3 : 2**.

(: is the symbol for **ratio**)

A boy has the following set of coloured tiles :-
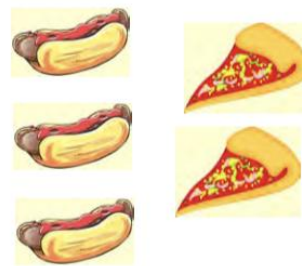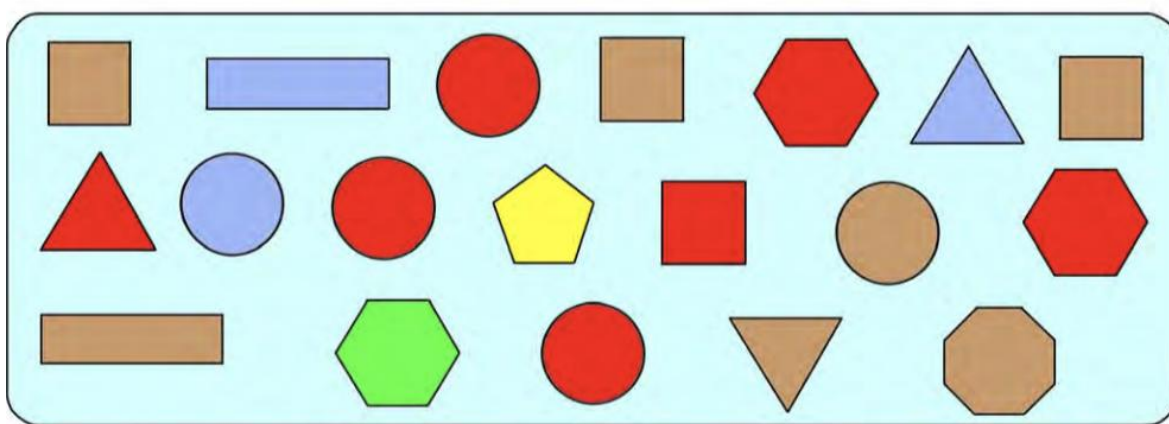

What is the ratio of :-

a   squares : circles

b   triangles : rectangles

c   hexagons : circles

d   red shapes : blue shapes

e   octagons : red circles

f   pentagons : circles

g   brown squares : squares

h   3 sided shapes : quadrilaterals ?

It is 180 kilometres between Sanding and Kinister.

A bird flies 143 kilometres from Sanding heading for Kinister.
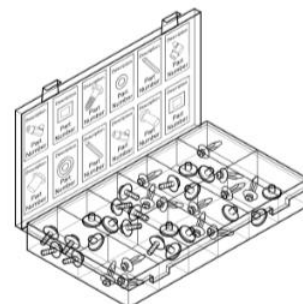
Write down the ratio of the :-

a   distance travelled : distance to go.

b   distance travelled : total distance.

A toolkit contains 140 items.

There are 45 screws, 57 nails and the rest are panel pins.

Write down the ratio of :-

a   screws : nails

b   items : nails

c   screws : pins

d   screws : nails : pins.

Simplifying Ratios

https://youtu.be/z7UWth70guM video notes

Earlier, you learned how to **simplify** fractions.

Example :- $\frac{4}{6}$ can be simplified, since 4 and 6 are part of the "2 times" table.

$$\frac{4}{6} \Rightarrow \frac{4}{6} \begin{smallmatrix}(\div 2)\\(\div 2)\end{smallmatrix} = \frac{2}{3}.$$

Similarly, the ratio **4 : 6** simplifies to **2 : 3** (*can you see this ?*)

By dividing both numbers by 2, **simplify** the ratio 10 : 8.

By dividing both numbers by 6, **simplify** the ratio 36 : 42.

Copy each of the following ratios and **simplify** each as far as possible :-

a	4 : 6	b	6 : 20	c	7 : 28	d	2 : 28	e	9 : 3	f	18 : 9
g	15 : 12	h	48 : 10	i	36 : 9	j	21 : 49	k	30 : 48	l	90 : 80
m	180 : 150	n	55 : 25	o	72 : 9	p	11 : 88	q	3 : 3000	r	900 : 6
s	41 : 82	t	360 : 36	u	12 : 6000	v	8 : 16 000 000.				

What is the ratio of apples to bananas in each picture below ?

Write each ratio in its **simplest** form.

a
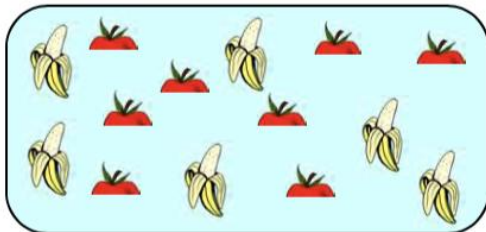
b
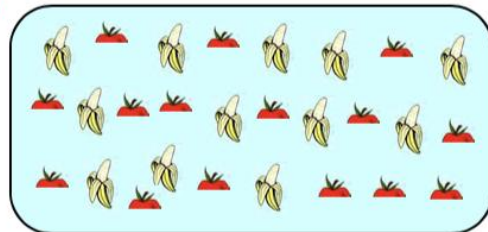
A concert arena uses 5 security people for every 1000 spectators.

a   What is the ratio of spectators to security people ?

b   Give this ratio in its **simplest** form.

The concert arena also has 10 VIP parking spaces for every 120 ordinary spaces.

a   What is the ratio of VIP spaces to ordinary spaces ?

b   Give this ratio in its **simplest** form.

https://corbettmaths.com/wp-content/uploads/2013/02/simplifying-ratios-pdf1.pdf
additional worksheet

This is the opposite of "simplifying" ratios.

Example :- To obtain a particular shade of **purple** paint, Q & B have to mix red and blue paint in the ratio, **red : blue = 3 : 4**.

For a large order, Q & B use 15 tins of red paint. How many blue tins are required ?

Set down like this :-

red	blue
3	4
×5 ↘ 15	20 ↙ ×5

Since **15 = 5 × 3**

then blue = **5 × 4 = 20**.

=> Needs **20** blue tins.

A different shade of **purple** can be made by using red : blue = 2 : 3.

a If Q & B used 8 tins of **red** paint, how many tins of **blue** are needed ?

Start with this :-

red	blue
2	3
×? ↘ 8	... ↙ ×?

b If Q & B used 12 tins of **red**, how many tins of **blue** are needed ?

c If, this time, Q & B used 24 tins of **blue**, how much **red** is needed ?

Cats	Dogs
5	4
40	...

In a Cat & Dog home, the ratio of cats : dogs is 5 : 4.

a If there are 40 cats, how many dogs must there be ?

b If in fact, there are 36 dogs, how many cats are there ?

Mr Rae buys rugby balls and footballs for a sports arena in a ratio of 2 : 7.

a How many footballs should he order if he needs 10 rugby balls ?

b How many rugby balls should he order if he needs 28 footballs ?

c How many balls does he order **in total** if he orders 6 rugby balls ?

A florist stocks carnations and roses in the ratio 11 : 7.

If there are :-

a 33 carnations, how many roses are there

b 77 carnations, how many roses

c 35 roses, how many carnations are there

d 98 roses, how many carnations ?

---

additional worksheet

Proportion

If you know how many miles you drive and how many litres of petrol you use, you can calculate the number of miles per litre your car travels.

Example :-   A van drives 48 miles on 8 litres of petrol, how many miles per litre ?

—›   **DIVIDE**   =>   8 litres —› 48 miles

1 litre —› 48 ÷ 8 = 6 miles

Rate =   **6 miles per litre**

A truck covered a distance of 120 miles on 6 gallons of petrol.

Calculate the rate in "*miles per gallon*".

Copy and **complete** :-

6 gallons —› 120 miles

1 gallon   —› 120 ÷ 6 = ...

= ....   miles/gallon.

A car covers 480 kilometres using 8 gallons of petrol.

Calculate the rate in "*kilometres per gallon*".
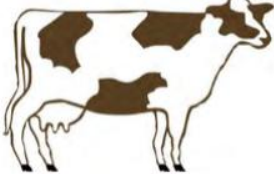
a   A cheetah runs a distance of 120 metres in 10 seconds.
Calculate its speed in metres/second.

b   A tortoise covers 12 metres and takes 6 minutes.
Calculate its speed in m/min.

c   A sheep eats 18·9 kilograms of grass in a week.
Calculate the weight of grass eaten per day.

d   Daisy the cow produces 56 litres of milk every week.
Calculate the rate per day.

e   Daisy expels 1050 litres of methane every week.
Calculate her rate per day.

Two quantities, (for example, the **number** of *pens* and the **total** *cost*) are said to be in **direct proportion**, if :-

" *When you **double** the number of pens —> you **double** the cost* ".

Example :- 9 Pens cost £33·75. What will 4 cost ?

Set down like this :-

	Pens		Cost
	9	—>	33·75
(divide)	1	—>	33·75 ÷ **9** = 3·75
(multiply)	4	—>	4 x 3·75 = **£15**

Eight birthday cakes cost £72. Find the cost of 3 cakes.

Copy and **complete** :-

Textbooks		Cost
8	—>	£72
1	—>	£72 ÷ 8 = £.......
3	—>	

Twenty teddy bears cost £350.

Find the cost of 11 teddy bears.
(*Hint - find the cost of 1 teddy first*).

When I exchanged £20 for euros, I received €22.

How many euros would I get for £9 ?
(*Hint - find how much I would get for £1 first*).

For each of the following, find the cost of one first :-

a   A jet travels 880 km in 8 hours. How far would it travel in 7 hours ?

b   A machine makes 6000 cogs in 6 minutes. How many would it make in 5 minutes ?

c   It takes 4 minutes to file 32 folders. How long would it take to file 56 folders ?

d   It takes a monkey 9 seconds to climb a 24 metre tree.
    How long would it take the monkey to climb a 16 m tree ?

Ratio and Proportion Summary Exercise

In a classroom, there are 16 girls and 12 boys.

a   Write down the ratio of girls : boys.

b   Simplify this ratio as far as possible.

Simplify the following ratios as far as possible :-

a   12 : 16   b   25 : 45   c   16 : 48   d   36 : 18

e   120 : 200   f   88 : 99   g   360 : 240   h $1\frac{1}{2}$: 6.

A gardener found the ratio of flowers : weeds was 5 : 2.
He had 18 weeds. How many flowers did he have ?

A bicycle shop sells mountain bikes and speed bikes.
The ratio of mountain bikes : speed bikes is 4 : 3.
If there were 28 mountain bikes :-

a   How many speed bikes were there ?

b   How many bikes were there altogether ?

Calculate the cost of one item for each of the following :-

a   Eight cakes costing £9·60   b   Seven books costing £84

c   Twenty Cd's for £180   d   3 pizzas for £5·25.

Five T-shirts cost me £55·50.

a   What is the cost of 1 T-shirt ?

b   How much would it cost for 4 T-shirts ?

It took a satellite 130 hours to go round the earth 5 times.
How long would the satellite take to go round 6 times ?

Sara can run 24 kilometres in 3 hours.

Sandi can run for 2 hours and cover 18 kilometres.

Who is running faster ?