

	40	7
30	1200	210
5	200	35

48

66

12

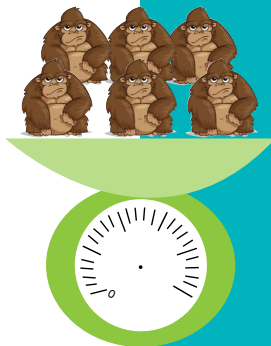
81

10

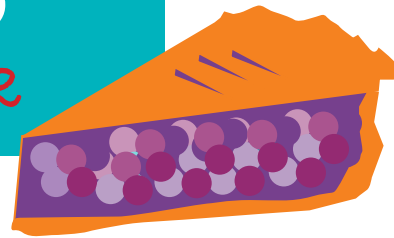
49

25

112

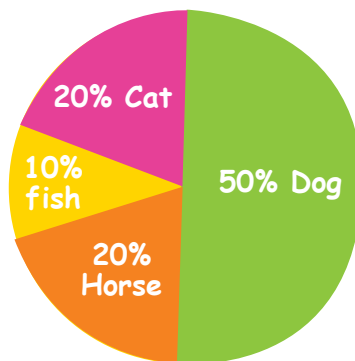
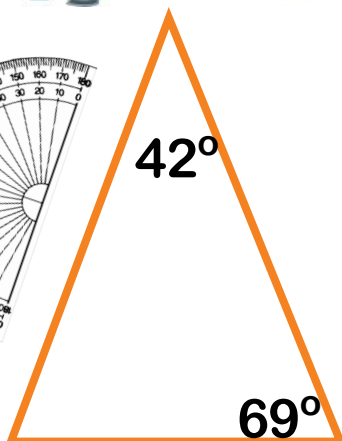
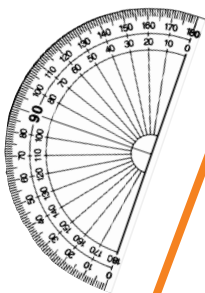


# Year 5 MATHS Booster pack



$\frac{10}{50}$

4kg

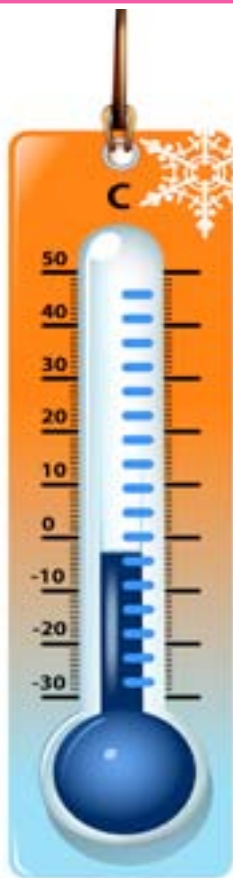


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

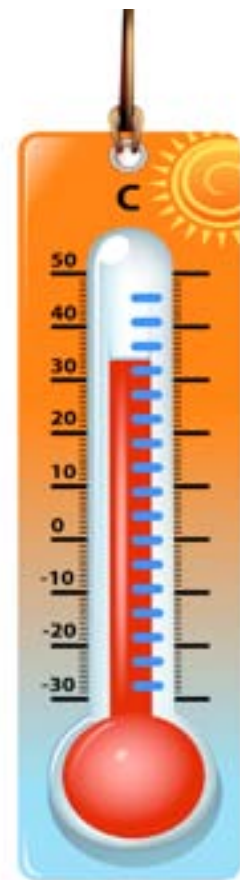
## Positive and negative

These are average temperatures for London and Moscow in 2010:

	Average temperature in London	Average temperature in Moscow
February	5°	-9°
May	18°	13°
August	26°	17°
November	3°	-2°



1. Which city is colder?
2. What is the difference in temperature in February?
3. What is the difference in temperature in August?
4. What is the difference in temperature in November?
5. In Moscow, how much colder is February compared to August?
6. In Moscow, how much warmer is May compared to November?
7. What is the difference between the temperatures in February and November in Moscow?



### PARENT TIP!

If your child finds minus numbers difficult to understand, draw up a vertical number line showing both negative and positive numbers that they can count along.

Answers: 1. Moscow, 2. 14°, 3. 9°, 4. 5°, 5. 26°, 6. 15°, 7. 7° C.

## Rounding speed challenge

Can you round the numbers in these tables according to the instruction given at the top?  
How fast can you finish?



Number	Round to the nearest hundred
170	
2937	
1370	
480	
25,691	

Number	Round to the nearest ten
62	
89	
119	
4219	
12	

Number	Round to the nearest whole number
58.619	
3.9	
4.19382	
8.2	
6.34	

Answers: 200, 2900, 1400, 500, 25,700; 60, 90, 120, 4220, 10; 59, 4, 8, 6.

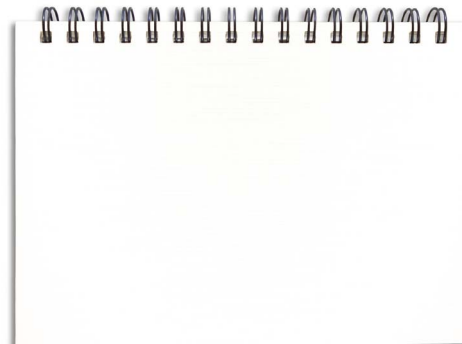
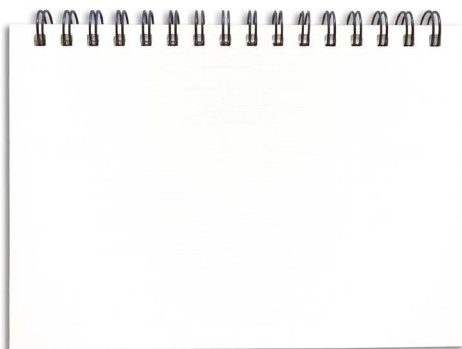
## Adding five-digit numbers

When adding larger numbers it is usually best to use the **column method**:

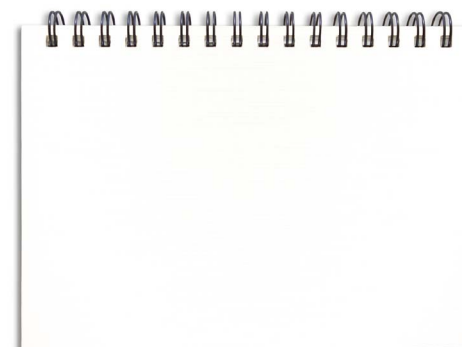
$$\begin{array}{r} 23,578 \\ + 16,721 \\ \hline 40,299 \end{array}$$

Work out the answers to these problems using this method:

1. Mr Lucky wins £31,682 on the lottery. His wife wins another £82,619. How much money do they have now?



2. There are 51,928 beads in a jar. I add another 7,918. How many are there in the jar now?



3. On Saturday, 32,971 people visit a shopping centre. On Sunday, 48,715 people visit. How many people visited over the whole weekend?

Answers: 1. 114,301, 2. 59,846, 3. 81,686.

## Visitors to the Zoo subtraction problem



On Monday, 588 people visited  
London Zoo.

On Tuesday, 319 people visited  
London Zoo.

**What is the difference between the  
number of visitors on each day?**

### **PARENT TIP!**

Discuss ways to find the difference between two numbers with your child. A good visual method might be to draw a number line showing jumps from 319 to 400, then 400 to 500, then 500 to 588.

Answer: 269

## Checking your answers



When checking an answer you could use the following strategies:

**APPROXIMATION** – Looking at the numbers involved and roughly working out the answer in your head.

**INVERSE OPERATION** – If you have just carried out a subtraction, use addition to check. If you have just divided, multiply to check.

For example:

$$153 - 38 = 48$$

I can roughly work out 150 minus 40 in my head (by rounding the numbers), which gives me 110 – this is very different from 48, so the answer is probably wrong and needs working out again. I can also add 38 and 48 in my head to see if it makes 153. It doesn't, so I know my answer is wrong.

$$66 \div 11 = 6$$

To check this division number sentence using the inverse operation, multiply the two underlined numbers to see if they equal the first number.

Can you use either approximation or the inverse operation to work out if the following are correct? If a number sentence is wrong, see if you can work out the correct answer.

Number sentence	Is it correct?	If not, what is the correct answer?
$184 - 58 = 22$		
$150 \div 5 = 20$		
$1000 - 34 = 966$		
$120 \div 4 = 16$		
$180 - 96 = 84$		

Answers:

	Yes	$180 - 96 = 84$
30	No	$120 \div 4 = 16$
	Yes	$1000 - 34 = 966$
30	No	$150 \div 5 = 20$
126	No	$184 - 58 = 22$
If not, what is the correct answer?	Is it correct?	Number sentence



## Find the prime numbers

$$6 \times 3 = 18$$

6 and 3 are factors of 18.

18 is a multiple of 6. 18 is also a multiple of 3.

Prime numbers have only two factors:  
1 and themselves.

Look at this grid. Cross off numbers that have more than two factors and put a ring around potential prime numbers. Use the space below for testing your theories. **How many prime numbers can you find?**

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



Answer: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29 are all prime numbers.

## Using the grid method to multiply

The grid method is a good way to multiply two two-digit numbers, for example:  $47 \times 35$ :

	40	7
30	1200	210
5	200	35

$$1200 + 210 + 200 + 35 = 1645$$

Can you use the grid method to work these sums out?

$$38 \times 27 =$$


$$63 \times 94 =$$


Try some more of your own then check your answers with a calculator. Remember – when you draw your grid, it needs to be 3 squares by 3 squares.

Answers:  $38 \times 27 = 1026$ ,  $63 \times 94 = 5922$



## Numbers puzzle: true or false?

Do you think this statement is correct?

If you multiply any number by 4,  
the answer will always be even.

Remember: you will need to try lots of different numbers!

Answer: The statement is true.

## Chunking for division practice

When dividing large numbers, a good method to use is chunking.

You use your knowledge of multiplication to take 'chunks' of numbers away from the large number you started with.

For example:

$$162 \div \text{by } 6$$

$$\begin{array}{r}
 6 \times 10 = 162 - 60 \\
 6 \times 10 = 102 - 60 \\
 6 \times 7 = 42 - 42 \\
 0
 \end{array}$$

You took 6 away from 162 twenty-seven times, so 162 divided by 6 equals 27.

Try the chunking method with these questions:

$$1. 84 \div 3 =$$

$$2. 162 \div 6 =$$

$$3. 126 \div 7 =$$

Answers: 1. 28, 2. 27, 3. 18

## Multiplying and dividing by 10 and 100

$\leftarrow \times 100$	$\leftarrow \times 10$	6	.
	6	0	.
6	0	0	.

When multiplying by ten, numbers move one place to the left.  
When multiplying by one hundred, numbers move two places to the left.



When dividing by ten, numbers move one place to the right.  
When dividing by one hundred, numbers move two places to the right.

4	$\rightarrow \div 10$	$\rightarrow \div 100$	
	0	.	4
0	.	0	4

Can you multiply these numbers by 10?

70		0.8		22		83		500	
9		0.34		3		973		9182	

Can you multiply these numbers by 100?

6		81		3.4		6		9000	
30		721		9.3		5.2		618	

Can you divide these numbers by 10?

8200		482		3		8.2		16	
0.3		93		3.8		5		7001	

Can you divide these numbers by 100?

600		56		150		4		7918	
8700		6		7.2		0.5		6022	

Answers: 700, 8, 220, 830, 5000, 90, 3.4, 30, 9730, 91,820; 600, 8100, 340, 600, 900,000, 3000, 72,100, 930, 520, 61,800; 820, 48.2; 0.3, 0.82, 1.6, 0.03, 9.3, 0.38, 0.5, 700.1; 6, 0.56, 1.5, 0.04, 79.18, 87, 0.06, 0.072, 0.005, 60.22

## Spot the square!

When you multiply a number by itself, the result is a square number.

For example:  $3 \times 3 = 9$ , so 9 is a square number.

$6 \times 6 = 36$ , so 36 is a square number.

Look at the following numbers. Circle the ones you think are square numbers.

48

66

10

81

25

112

4

49

12

Answers: 81 ( $9 \times 9$ ), 25 ( $5 \times 5$ ), 4 ( $2 \times 2$ ), 49 ( $7 \times 7$ ) should all be circled.



## Finding fraction pairs

Percy has four fractions. The fractions need to be matched up into pairs of the same value.

The only problem is that the denominators (bottom numbers) are all different.

See if you can help him by changing the fractions so that all the denominators are the same. Use the space below for your working.

Then match up the two pairs of fractions with the same value!

$$\frac{4}{5}$$

$$\frac{2}{10}$$

$$\frac{12}{15}$$

$$\frac{10}{50}$$

—

—

—

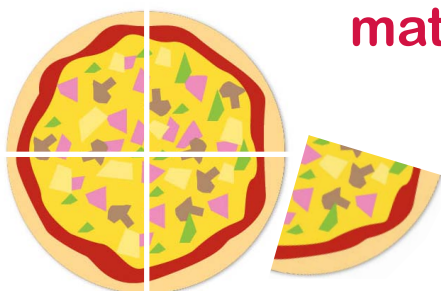
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### PARENT TIP!

Encourage your child to think about multiplying or dividing the denominators so they all end up the same. Remind them that the numerators will need multiplying or dividing by the same numbers.

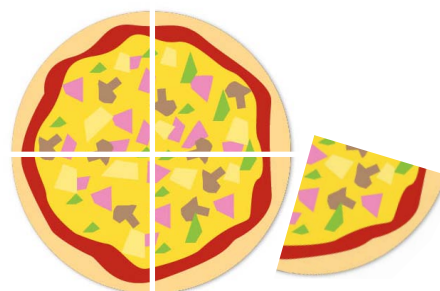
Answers:  $\frac{4}{5}$  stays the same,  $\frac{2}{10}$  changes to  $\frac{1}{5}$ ,  $\frac{12}{15}$  changes to  $\frac{4}{5}$ ,  $\frac{10}{50}$  changes to  $\frac{1}{5}$ . Therefore,  $\frac{2}{10}$  and  $\frac{10}{50}$  are an equal pair.  $\frac{4}{5}$  and  $\frac{12}{15}$  are an equal pair.

## Cake and pizza maths



$$1\frac{3}{4}$$

This is  
a mixed  
number



$$\frac{5}{4}$$

This is  
an improper  
fraction

Can you complete this table? Use food to help you if you can!

	Mixed number	Improper fraction
	$1\frac{2}{3}$	$\frac{5}{3}$
	$1\frac{2}{4}$	
		$\frac{9}{6}$

Answers:  $\frac{6}{4}$ ;  $1\frac{3}{6}$ ;  $1\frac{1}{2}$ ;  $1\frac{1}{3}$   $\frac{4}{3}$ ;  $1\frac{3}{8}$ ;  $\frac{11}{8}$

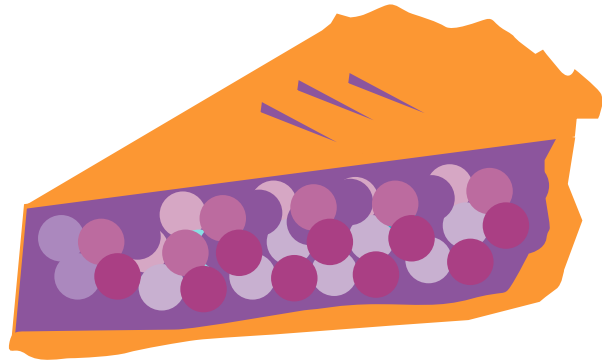


## Proportional pies

Jason needs to make three blueberry pies for the school fair.

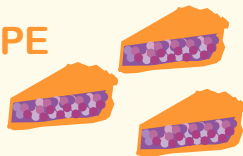
He is using his mum's recipe which has quantities to make one blueberry pie:

- 6 cups of blueberries
- $\frac{1}{2}$  teaspoon lemon zest
- One tablespoon lemon juice
- $\frac{1}{4}$  cup of flour
- $\frac{1}{2}$  cup of sugar
- $\frac{1}{4}$  teaspoon of cinnamon
- 2 tablespoons of butter



Write down the quantities of ingredients Jason will need to make three blueberry pies.

### BLUEBERRY PIE RECIPE

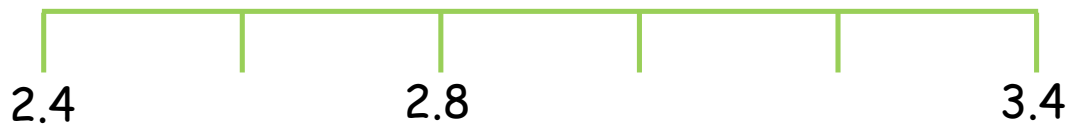


- .....
- .....
- .....
- .....
- .....
- .....
- .....

Answer:  
 18 cups of blueberries  
 1  $\frac{1}{2}$  teaspoons of lemon zest  
 3 tablespoons of lemon juice  
 $\frac{3}{4}$  cup of flour  
 1  $\frac{1}{2}$  cups of sugar  
 $\frac{3}{4}$  teaspoons of cinnamon  
 6 tablespoons of butter

## Missing decimals on a number line

Can you work out what the missing decimals are on each of these number lines?



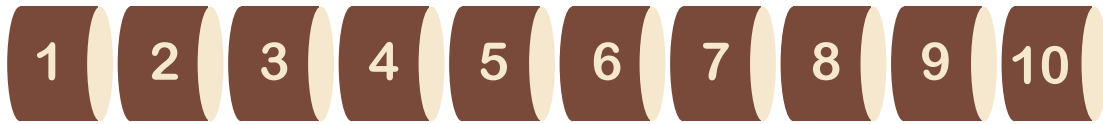
### PARENT TIP!

It may help your child to think of these decimals as pounds and pence. They may need to use trial and error for this. Encourage them to try out various sequences and then keep changing them when they don't work. Mistakes help them to learn!

Answers:  
2.4, 2.6, 2.8, 3, 3.2, 3.4  
1.82, 1.86, 1.9, 1.94, 1.98, 2.02  
1.5, 2, 2.5, 3, 3.5, 4

## Percentage practice

Imagine an object has been cut into ten equal parts. Each part is  $\frac{1}{10}$ .  
We also say that each part is 10%.



To find 10% of a number, you divide the number by ten.

When you divide a number by ten, you imagine that the digits slide one place to the right, so 13 becomes 1.3, 240 becomes 24, etc.

Find 10% of the following amounts:

£27

1 litre

800

Half a metre

£5

48

4kg

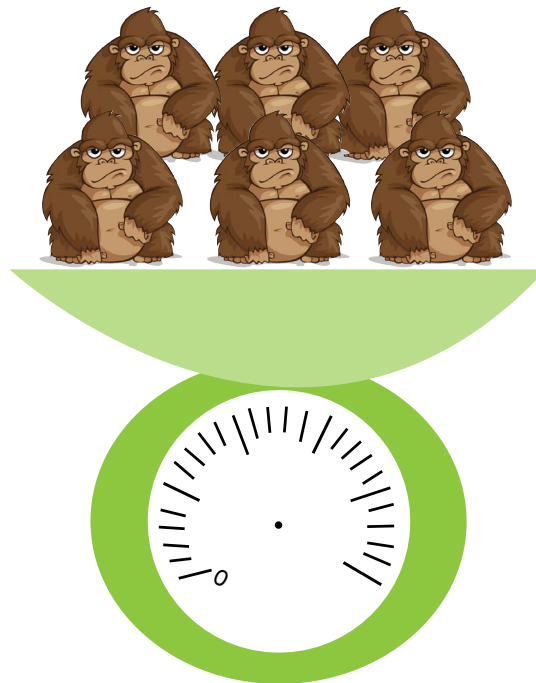
6500

600cm

### PARENT TIP!

Remind your child that some numbers may need converting, for example:  
1 litre = 1000ml.

## Multiple gorillas and other measures problems

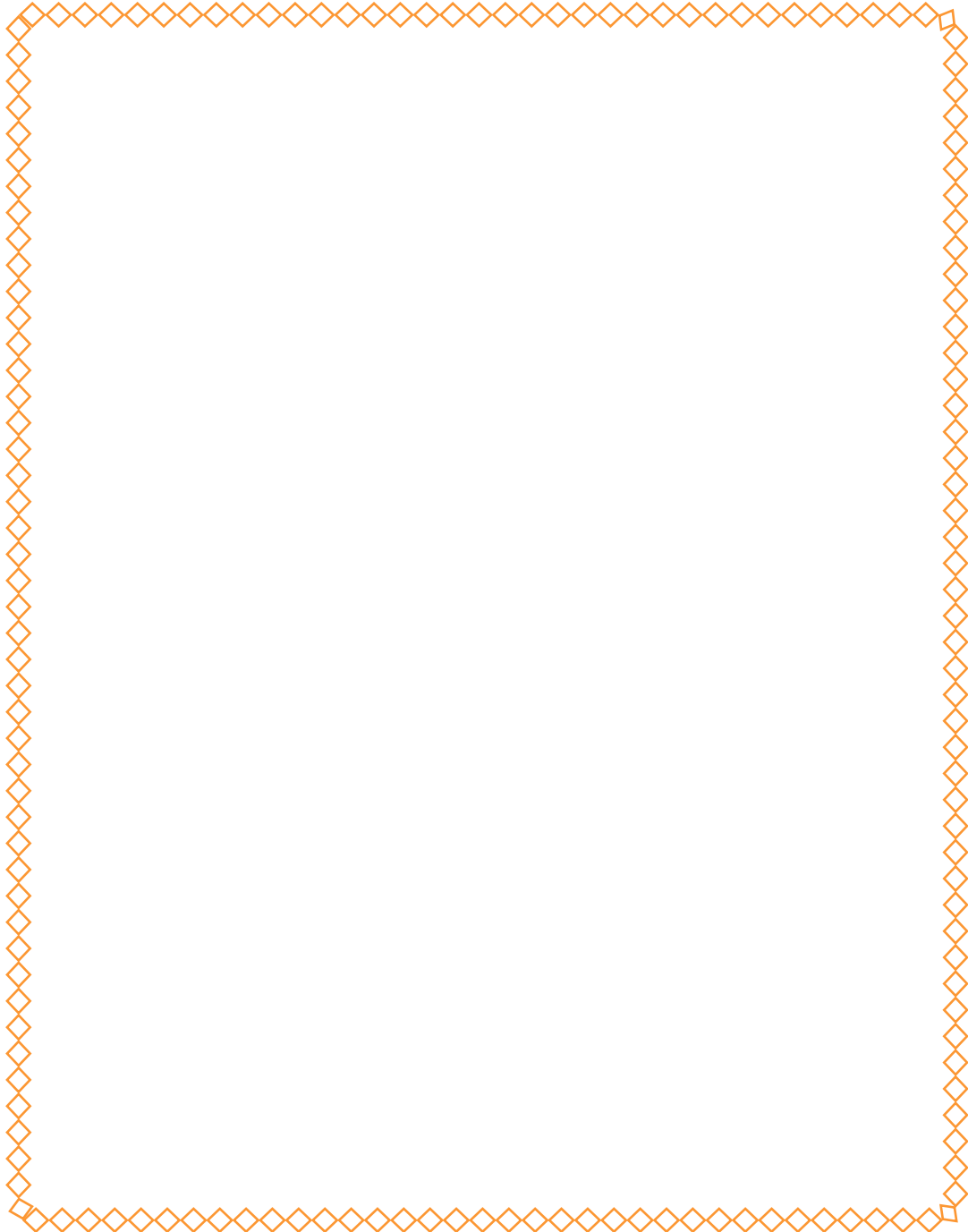


1. A gorilla has had 6 babies, each weighing 680g. How much do the four babies weigh altogether in kilograms?
2. Alastair the alligator is 1.2m long. His little brother, Alex, is 85cm long. Their baby sister, Alice, is 38cm long.
  - a) How much taller is Alastair than Alice?
  - b) How much shorter is Alex than Alastair?
3. A sack weighs 1.52kg. It contains four bags of flour, which all weigh the same amount. How heavy is each bag of flour? (The sack itself weighs nothing.)
4. Frank has 8.92 litres of paint. He buys another 2.5 litres. He uses 900ml to paint a wall in his bedroom. How much paint does he have left?
5. Karen is following a recipe to make enough cheese sauce for four people. She needs to use 160g of flour and 760ml milk. How much flour and milk will she needs to use if she is making cheese sauce for six people?

Answers: 1. 4.08kg, 2. a) 82 cm b) 35cm, 3. 380g each, 4. 10.52 litres, 5. 240g of flour and 1140ml of milk.

## Perimeter puzzle

A rectangle has a perimeter of 22cm and an area of  $28\text{cm}^2$ . Can you work out what the shape is and how long each side is?



### PARENT TIP!

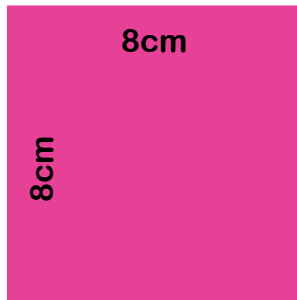
Encourage your child to think about numbers that can be multiplied together to make 28. Drawing pictures will also help!

Answer: The rectangle has two sides measuring 4cm and two sides measuring 7cm.

## Area investigation

Note: none of these shapes are drawn to actual size.

This square and this rectangle both have the same area of  $64\text{cm}^2$



1. This square has an area of  $36\text{cm}^2$ . What sized rectangle would have the same area?



2. This rectangle has an area of  $25\text{cm}^2$ . What sized square has the same area?

3. A rectangle and a square each have an area of  $100\text{cm}^2$ .

What sizes might they both be?

See if you can think of all the different possibilities for rectangles with an area of  $100\text{cm}^2$ . (Use only whole numbers for the measurements, or this will take you a very long time!)

Answers: 1. The rectangle could be  $1 \times 36$ ,  $2 \times 18$ ,  $3 \times 12$ ,  $4 \times 9$ ,  $6 \times 6$ . 2. The square would be  $5 \times 5$ . 3. The square would be  $10 \times 10$  and the rectangle could be  $1 \times 100$ ,  $2 \times 50$ ,  $4 \times 25$ ,  $5 \times 20$  or  $10 \times 10$ .



## Train trackers

This is a train timetable showing three different journeys starting at Peckham Rye and finishing at Haywards Heath.

	Journey 1	Journey 2	Journey 3
Peckham Rye	15.30	15.45	16.00
Tulse Hill	15.55	16.10	16.25
West Norwood	16.10	16.25	16.40
East Croydon	16.20	16.35	16.50
Haywards Heath	16.35	16.50	17.05



1. If you get the 15.30 train from Peckham Rye, what time will you arrive in Haywards Heath?
2. If you get the 16.25 train from West Norwood, what time will you arrive in East Croydon?
3. If you get the 16.40 train from West Norwood, what time will you arrive in Haywards Heath?
4. If you were travelling from West Norwood and wanted to arrive in Haywards Heath before 5pm, which two journeys could you take?
5. If you were travelling from Peckham Rye and wanted to arrive in Tulse Hill before 4pm, which journey would you take?
6. If you took the 16.25 train from Tulse Hill, how long would it take you to get to East Croydon?
7. If you took the 15.30 train from Peckham Rye, how long would it take you to get to Haywards Heath?

### PARENT TIP!

These questions test ability to read a table, understanding of the 24-hour clock and aptitude for working out time intervals. They may highlight gaps in your child's knowledge that will be helpful to go over in more detail before they complete the questions. If your child (like many) finds time difficult, it may be worth investing in a plastic clock to demonstrate concepts to them.

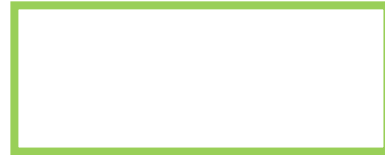
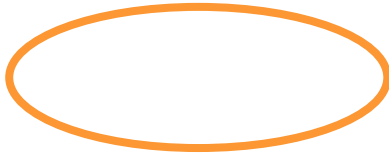
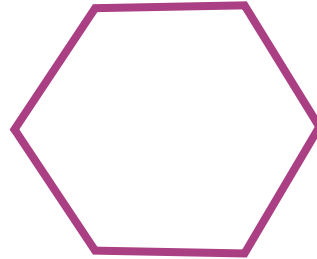
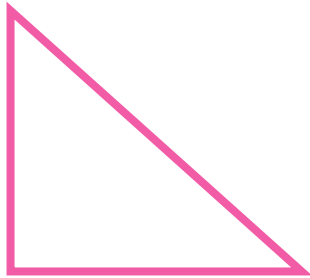
Answers: 16.35 2. 16.35 3. 17.05 4. Journeys 1 + 2 5. Journey 1 6. 25 minutes 7. 1 hour 5 mins

## Parallel or perpendicular?

When two lines are **parallel** they are side by side and always have the same distance between them.

When two lines are **perpendicular** they are at right angles to each other.

Can you sort these shapes into a Carroll diagram?

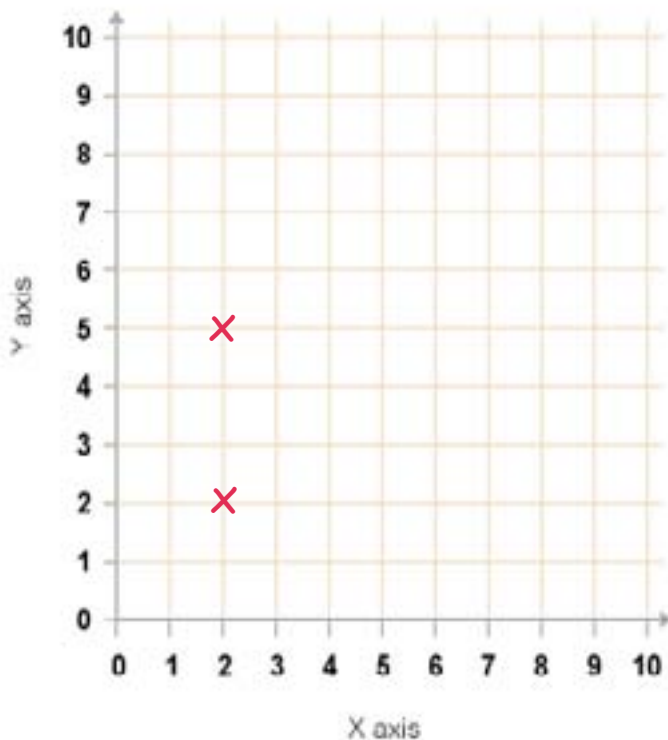


	Has perpendicular lines	Does not have perpendicular lines
Has parallel lines		
Does not have parallel lines		

Answers:

		Does not have parallel lines
		Has parallel lines
Does not have perpendicular lines	Has perpendicular lines	

## What's the mystery shape?



### PARENT TIP!

When plotting co-ordinates you always go across for the first number and up for the second number. 'Across the landing and up the stairs' will help your child to remember this rule.

If your child is still learning vocabulary related to shapes, go through each statement with them.

Plot these points on the quadrant:

(4, 7) (4, 0) (8, 6) (8, 1)

Join up the points (use a ruler!) to make a shape.

Tick the statements you think are correct about this shape:

The shape has six sides and two right angles. ☐

The shape is a hexagon with no lines of symmetry. ☐

The shape has two pairs of sides which are the same length. ☐

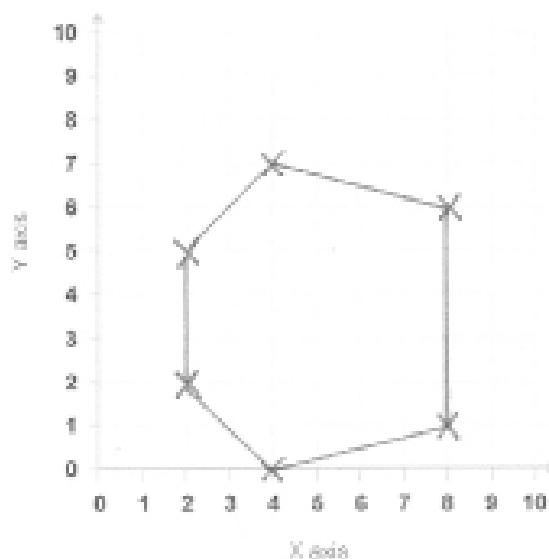
The shape is a pentagon with one line of symmetry. ☐

The shape is an octagon with two lines of symmetry. ☐

The shape is a hexagon with one line of symmetry. ☐

The shape has six sides and no right angles. ☐

## What's the mystery shape answer



Tick the statements you think are correct about this shape:

The shape has two pairs of sides which are the same length. ☒

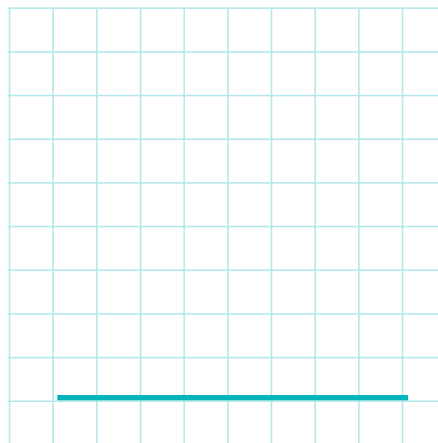
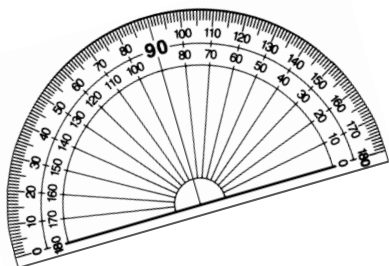
The shape is a hexagon with one line of symmetry. ☒

The shape has six sides and no right angles. ☒

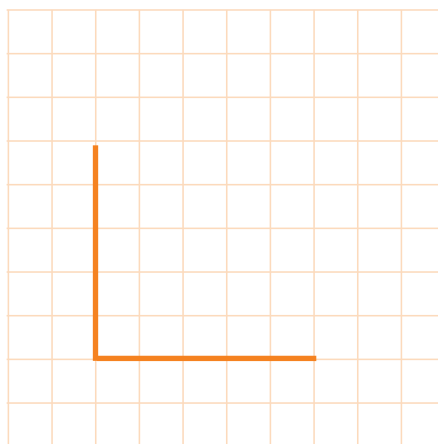
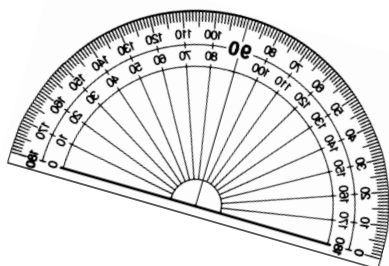
## Drawing shapes and angles

You will need a protractor (angle measurer) for this activity.

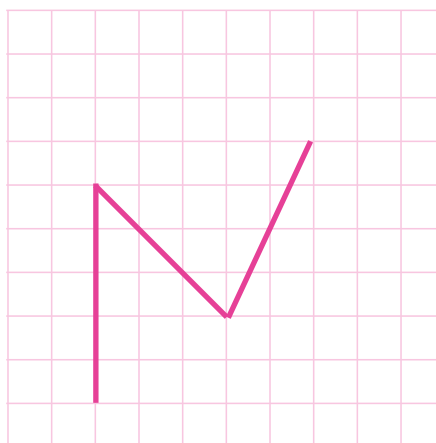
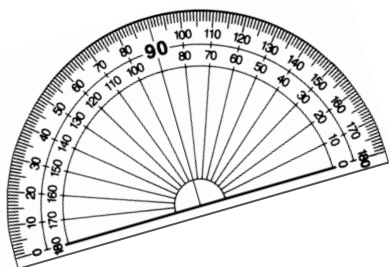
1. Can you add two lines to this line to draw a right-angled triangle with one angle of  $50^\circ$ ?



2. Complete this shape to draw a pentagon with one angle of  $80^\circ$ .



3. Complete this shape so that it has two right angles.

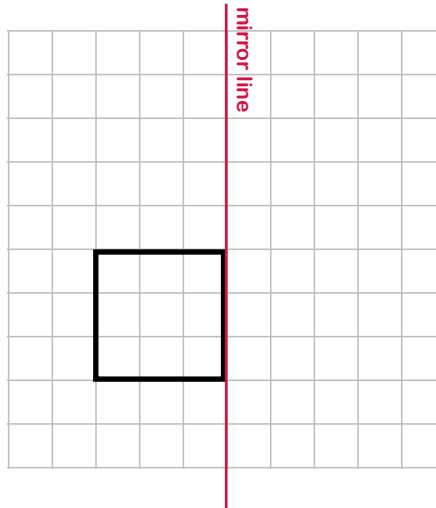




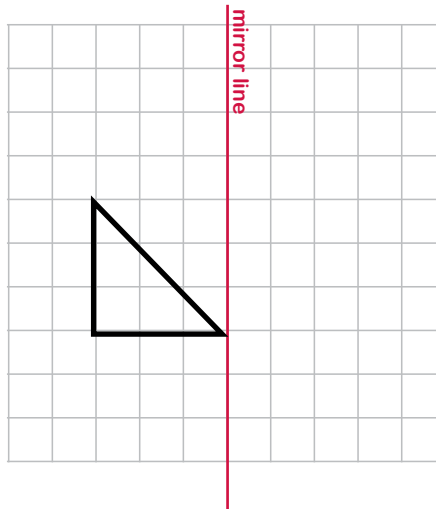
## Translating and reflecting shapes in a mirror line



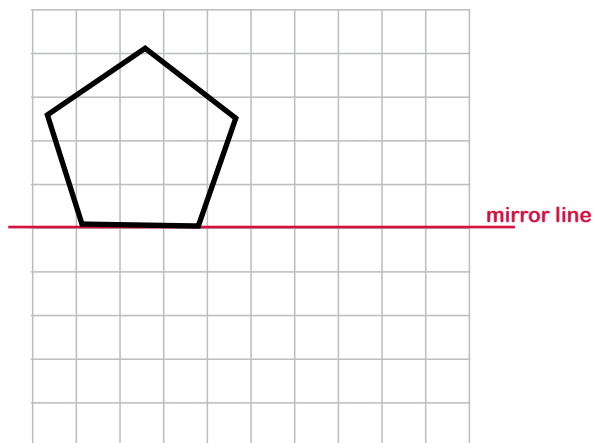
1. Translate this shape up three squares and left two squares. Once you have done this, reflect the new shape in the mirror line:



2. Reflect this shape in the mirror line. Once you have done this, translate it three squares down and five squares to the left:



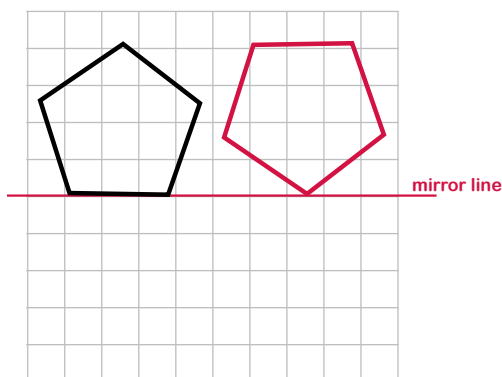
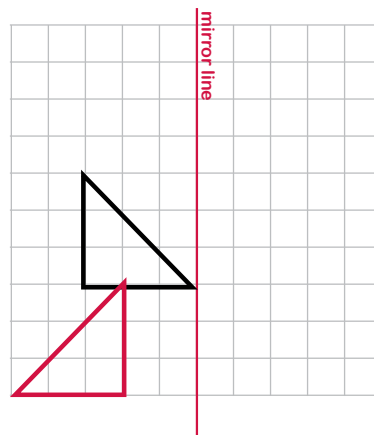
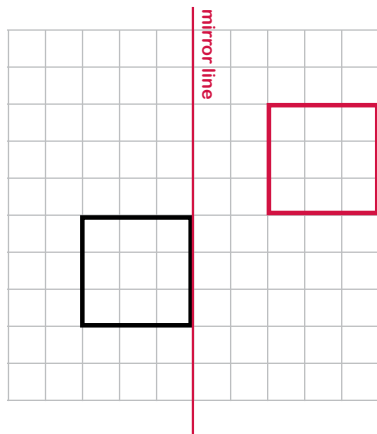
3. Translate this shape down four squares and across to the right five squares. Once you have done this, reflect it in the mirror line:

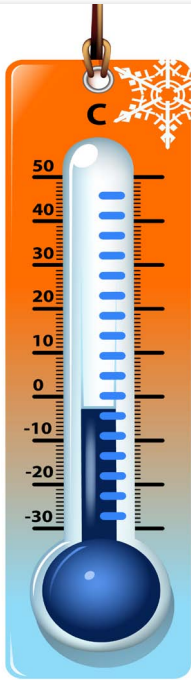






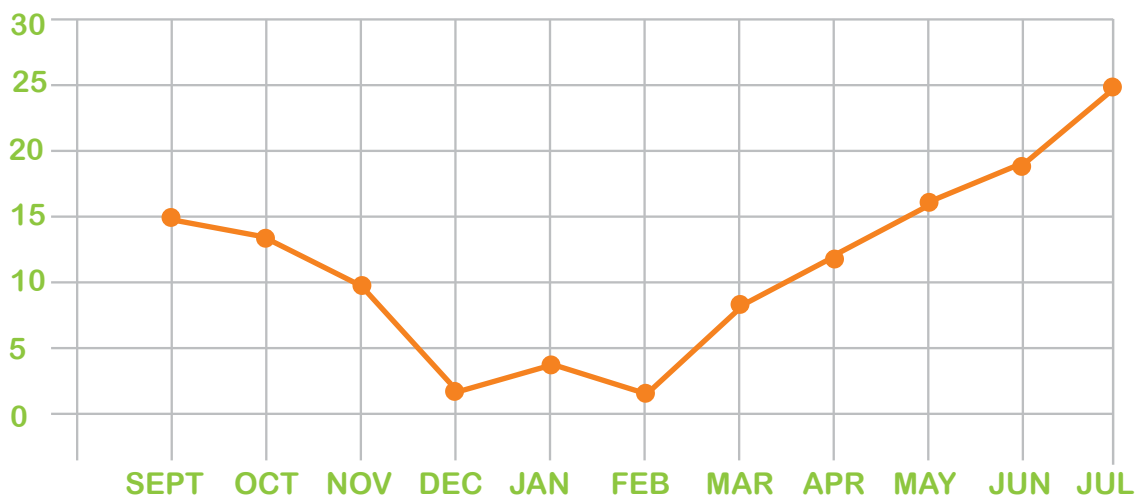
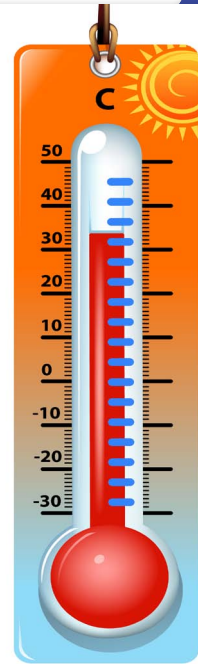
## Translating and reflecting shapes in a mirror line





## Plotting temperature on a line graph

Class 5B left a thermometer outside their classroom for the whole of the school year. They read the temperature on the first day of every month. They then plotted a line graph to show what they found:



Can you read the line graph and answer these questions?

1. What was the temperature on the first day of September?
2. What was the temperature on the first day of July?
3. Estimate how much warmer it was in October than in December.
4. Estimate the difference between the warmest month and the coldest month.
5. It was supposed to reach 30°C in July. How many degrees off this temperature was the actual temperature on the first day of July?

Answers: 1. 15°C, 2. 25°C, 3. Any answer between 10° and 13°, 4. Any answer between 22° and 24°, 5. 5°