Maths Test
Top Tips
to Avoid the
SAT's Trap

Tip – Get the units all the same

Write these times in order, starting with the shortest.

24 days

10 weeks

1 month

48 hours

shortest

5

1 mark

Change them all into the same units to see which is smallest!

Tip – Get the units all the same

15 These are all times on the same morning.

A 7:56 am

B quarter to eight

C six minutes to eight

D half past seven

Write the letters for the times in order, starting with the earliest.

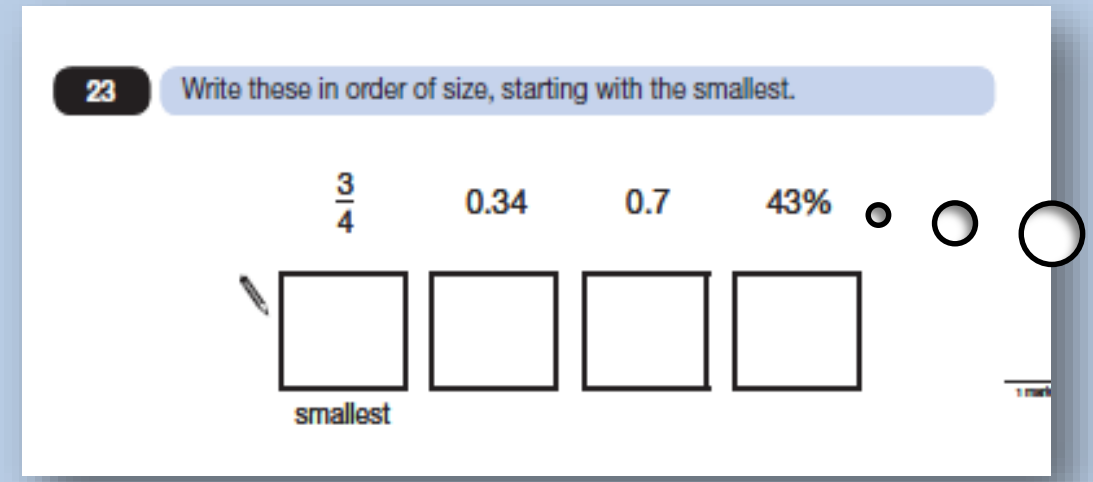
_____

1 mark

Put them all as the same units so you can see which is earliest!

Tip – Mixed fractions, decimals and %

Make them all the same



Get them all as fractions, decimals or percentages

Tip – Change mixed measures to the same type

Change them ALL to grams.

16 Here are four masses.

2 kilograms	1 tonne	800 grams	$\frac{1}{2}$ kilogram

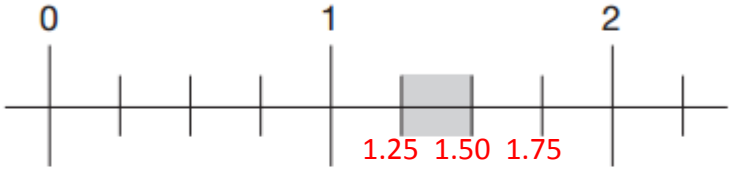
Write the masses in order, starting with the lightest.

lightest

One tonne is one million grams!

Tip – Change fractions and decimals to the same thing

Part of this number line is shaded.



Mark the scale on in decimals.

(0.25, 0.50, 0.75)

Circle **all** the numbers below that belong in the shaded part of the number line.

1.10 1.40 **1.33** $1\frac{1}{3}$ **1.20** $1\frac{1}{5}$

Change fractions to decimals

Tip – Change them both to the same type of measurement

Chen and Megan each have a parcel.

Chen's parcel weighs $1\frac{1}{2}$kg.

Megan's parcel weighs 1.2kg.

How many more **grams** does Chen's parcel weigh than Megan's parcel?

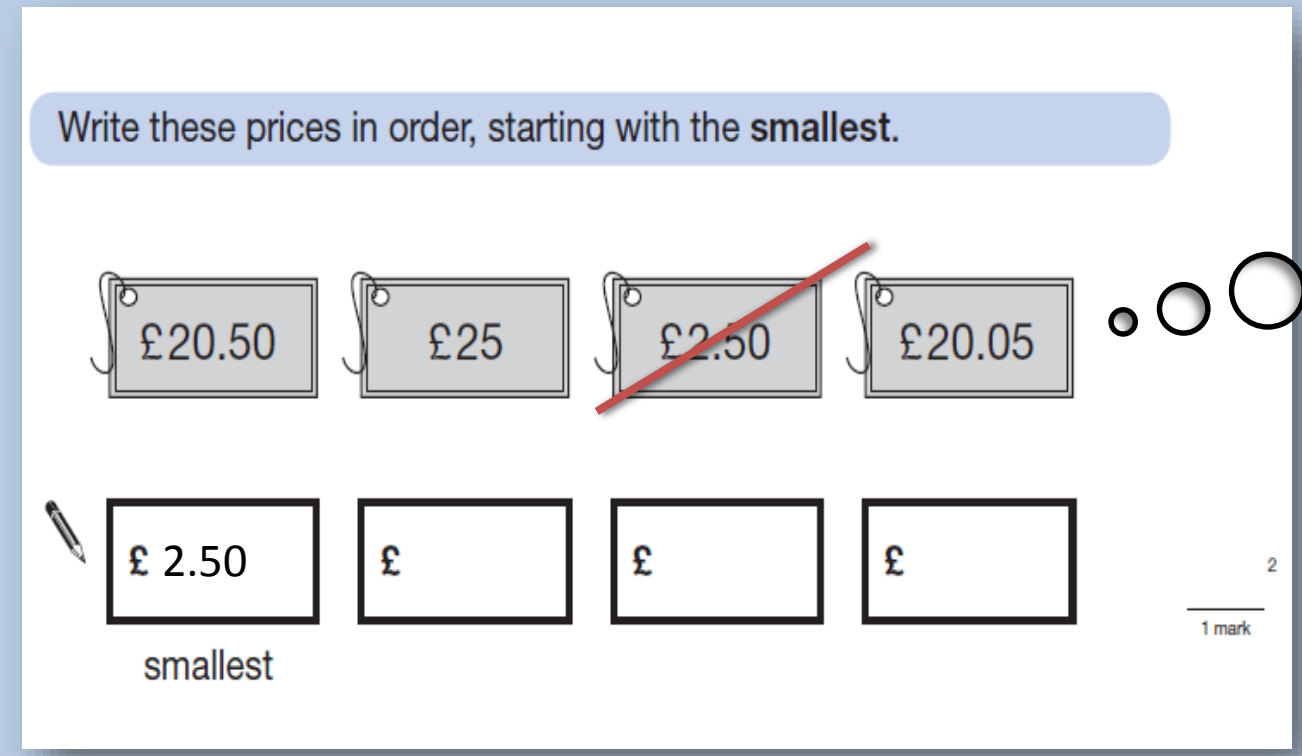
Change them both to GRAMS

1500 grams

1200 grams

300 grams difference

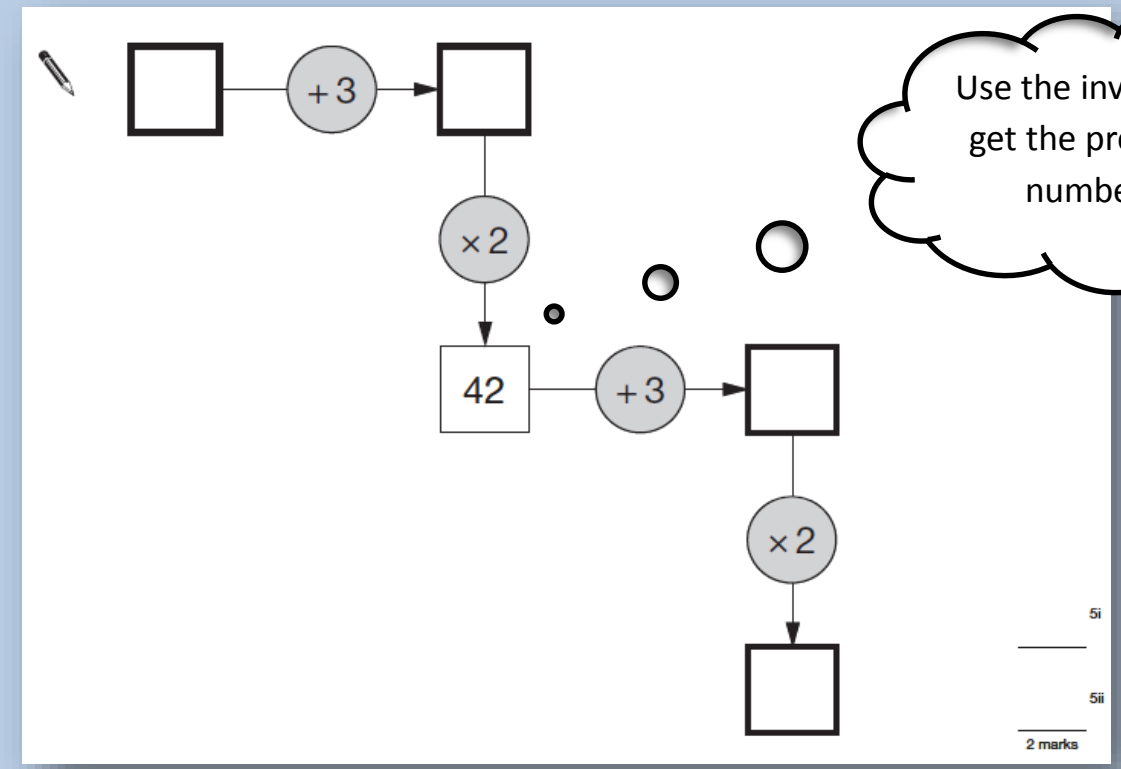
Tip – Cross items off as you write things in the boxes



As you write the correct answer in the box, cross it off the top

Tip – Function machines

Do them backwards and forwards to find the missing numbers



Use the inverse to get the previous numbers

Tip – Look for an easier way to do the calculation

Do 5 x 4 = 20 first

Then multiply the answer by 17

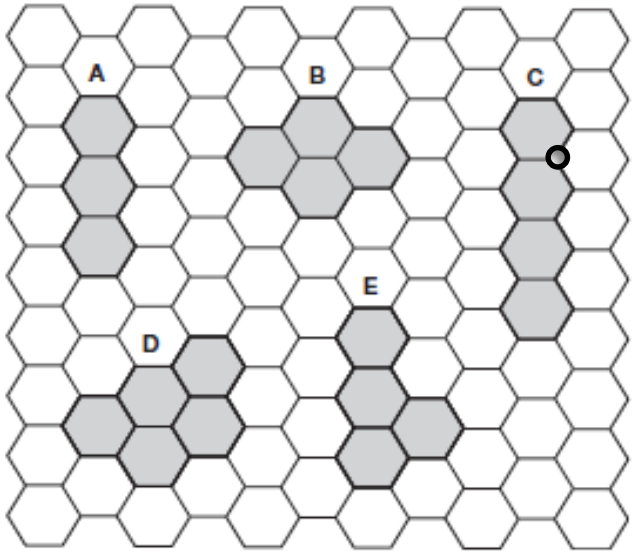
20

11 Calculate 17 × 5 × 4

Tip – Counting perimeters on grids

Put a starting DOT and mark off as you count

Here are five shapes on a regular grid.



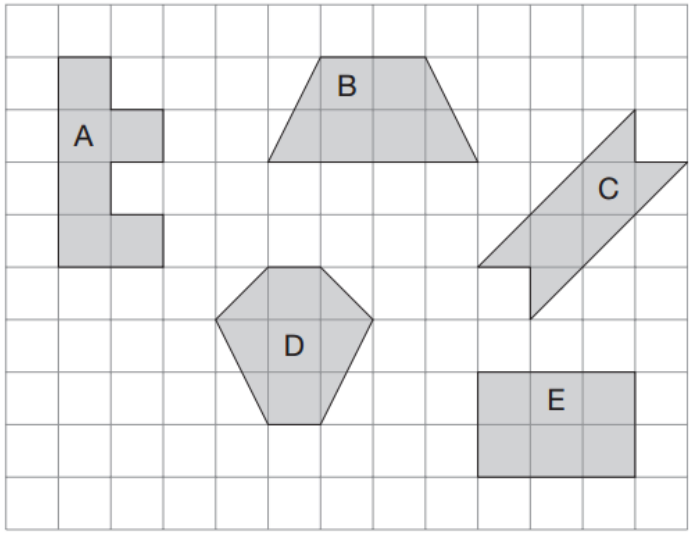
Which shape has the longest **perimeter**?

Put a starting DOT.

Mark off the sides as you count them

Tip - Beware of a quick change of question (SATS TRAP)

13 Here are some shapes on a 1 cm square grid.



Perimeter

What is the **perimeter** of shape A?

cm

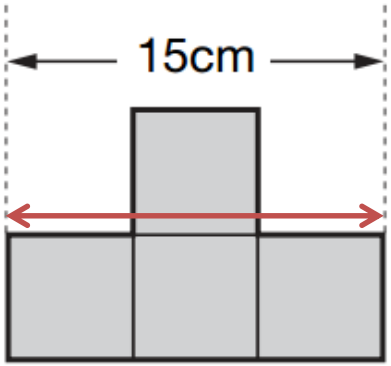
Area

Write the letter of the shape that has the **smallest area**.

_____

Tip - If it looks easy, there could be a SATS TRAP
This question has 2 steps.

This shape is made from 4 shaded squares.



Not actual size

Calculate the perimeter of the shape.

It is 15 right across
so 15 ÷ 3 = 5

So each square is 5

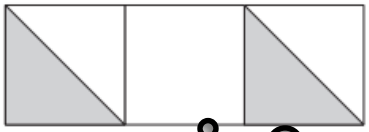
NOW do the **perimeter**

10 x 5

People do 10 x 15 on this question and fall into the **SATs Trap**

Tip – Draw on lines.
Fractions need to have pieces the same size.

15



Holly says,

'One-third of this shape is shaded'.

Is Holly correct?
Circle **Yes** or **No**.

Yes / No

Explain how you know.

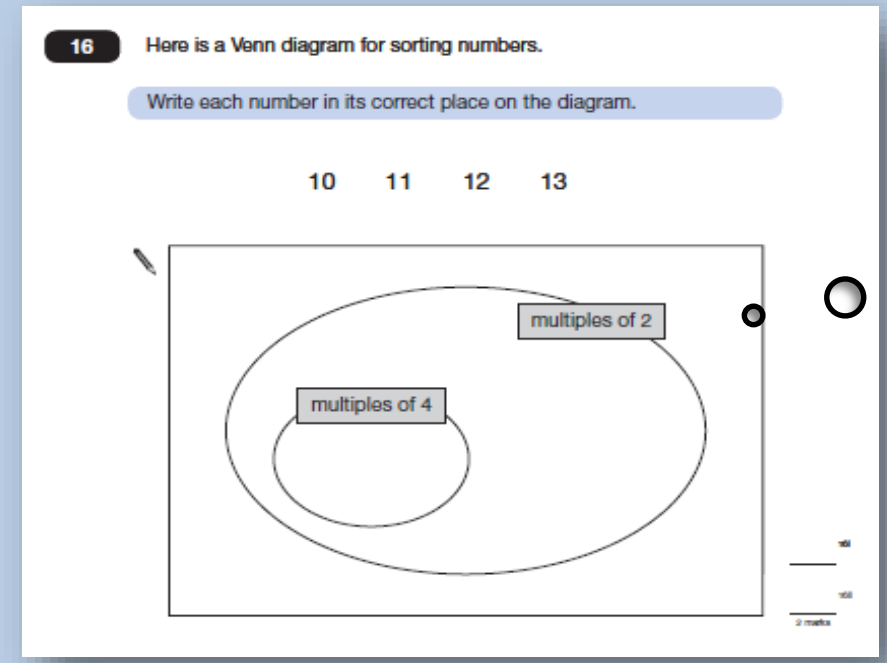
Put a diagonal line across the middle square

2 out of 6 is shaded.

Is 2/6 equivalent to 1/3. Yes it is!

Tip – Venn or Carroll Diagrams

Cross off the numbers as you put them in



16 Here is a Venn diagram for sorting numbers.

Write each number in its correct place on the diagram.

10 11 12 13

multiples of 2

multiples of 4

Cross out the numbers as you put them in the diagram! Don't forget the 'outside' bit!

Tip – SPOT the INVERSE question

'This vehicle is reversing'

Josh thinks of a number.

He adds 4

He multiplies his result by 3

Then he takes away 9

His final answer is 90

What number did Josh start with?

Start at the END.

Reverse the operations.

Check it works

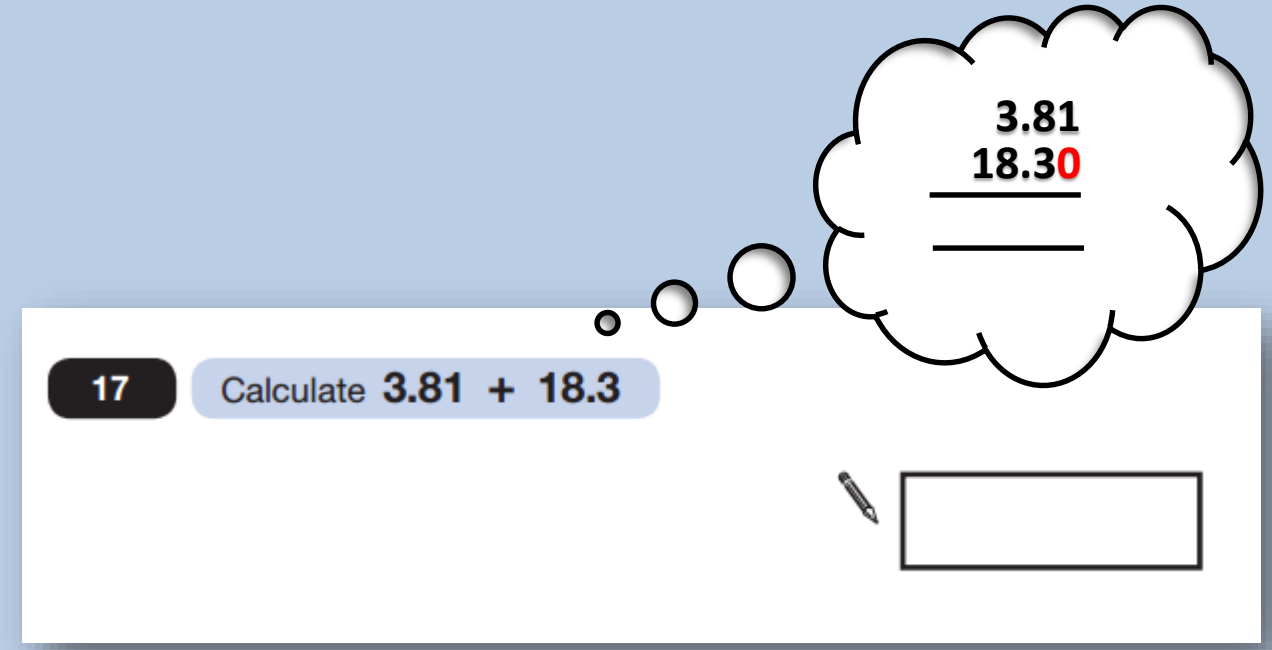
REMEMBER

ADD is married to **TAKE**

MULTIPLY is married to **DIVIDE**

Tip – Line up your decimal points like soldiers on parade.

Add noughts to the end of decimals if it helps!



Tip – Line up your decimal points like soldiers on parade.

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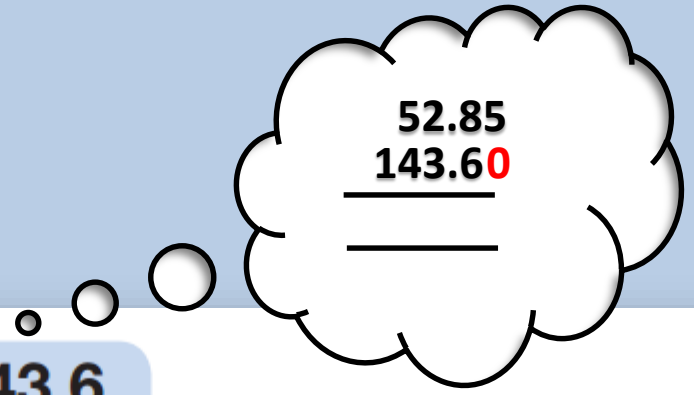


Calculate **52.85 + 143.6**

Tip – Make a LIST first

Find two **square numbers** that total 45

□ + □ = 45

Square Numbers

1

4

9

16

25

36

Tip – Make all decimal numbers have the same digits by adding a '0'

Adding a '**0**' to the end of SOME decimals makes it a lot easier!

Circle two decimals that have a difference of 0.5**0**

0.2**0** 0.25 0.4**0** 0.45 0.6**0** 0.75

TIP:

Only add a **0** to the numbers that need it!

Tip – Make all decimal numbers have the same digits by adding a '0'

Adding a '0' to the end of SOME decimals makes it a lot easier!

Circle **all** the numbers that are **greater than** 0.60

0.50 0.80 0.23 0.09 0.67

Tip – Coin questions

Make sure the coins exist!

Dev has five coins.

He has £1.60 altogether.

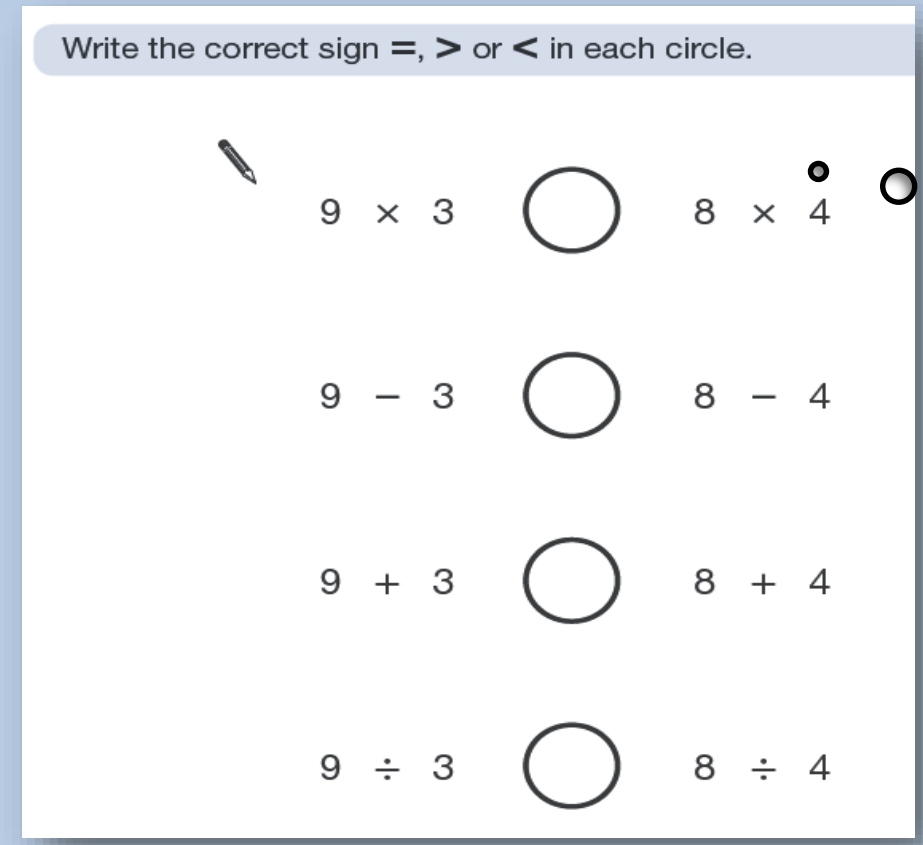
Write what the five coins could be.

The only coins you can use are:

1p, 2p, 5p, 10p, 20p, 50p, £1 and £2

Tip – Questions with lots of sums to work out

Work them out and write the answer next to them



Write the answers **above** each sum

REMEMBER: the crocodile eats the biggest meal

Tip – Questions involving TIME problem solving

Use a number line

Holly takes **half an hour** to walk from home to school.

She arrives at school at 8:25 am.

At what time did she leave home?

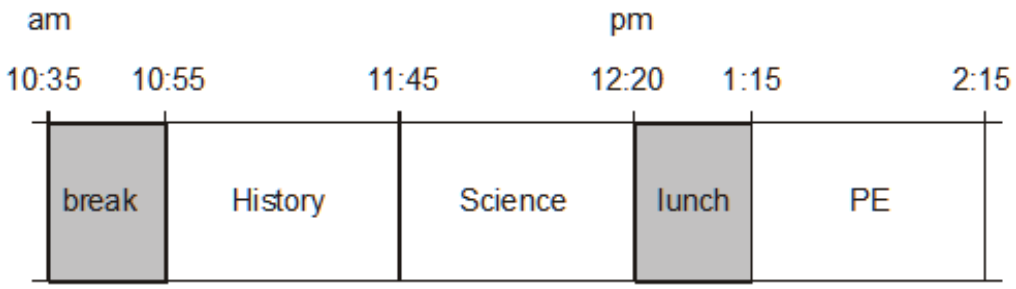
am

Draw a number line! It will guarantee that you get the mark!

Tip – Questions involving TIME problem solving

Use a number line

Here is part of the timetable for Class 6 on a Monday.



Look at the timetable.

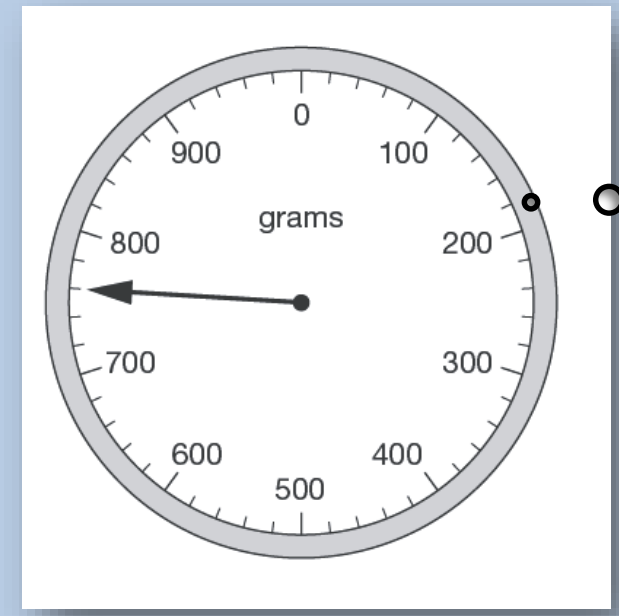
How long is it from the **end** of break to the **start** of lunch?

.....

Draw a number line! It will guarantee that you get the mark!

Tip – Questions involving scales

Fill in the missing scales



Count the gaps and work out the scale

Tip – Number line questions

Label the lines on the number line and then answer!

Here is a number line.

What is the value of **X**?

X = ☐

1 mark

Estimate the value of **Y**.

Y = ☐

1 mark

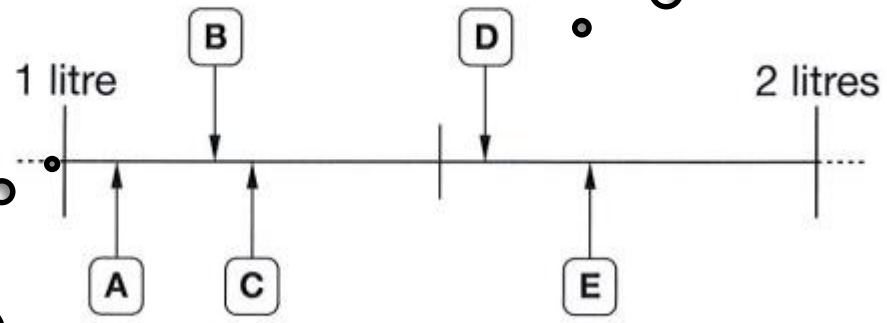
Label the sections on the number line first and then answer.

Tip – Number line questions

Mark on the half way and quarter points

Mark on half and quarter points to help estimate

19 Here are five letters on a scale.

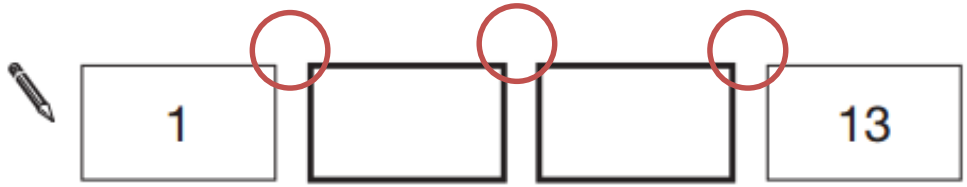


Be careful - not all scales start from 0

Tip – Take the 2 numbers away and divide by the gaps

The numbers in this sequence increase by the same amount each time.

Write in the missing numbers.



13 – 1 = 12

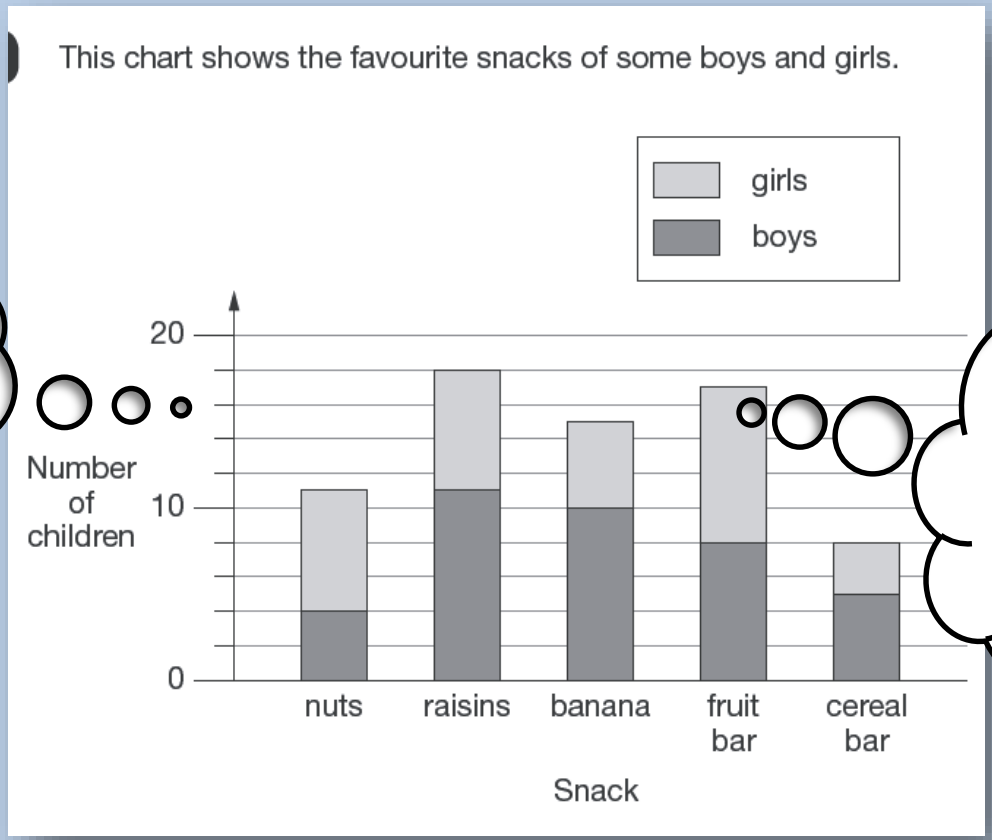
Divide 12 by 3 gaps = 4

It's going up in **4's**

Tip - Graph questions

Always label the numbers and write the amount on the bar.

Always write the missing numbers on the scale



Write how many on EVERY bar before answering.

This has a SPLIT bar - be careful!

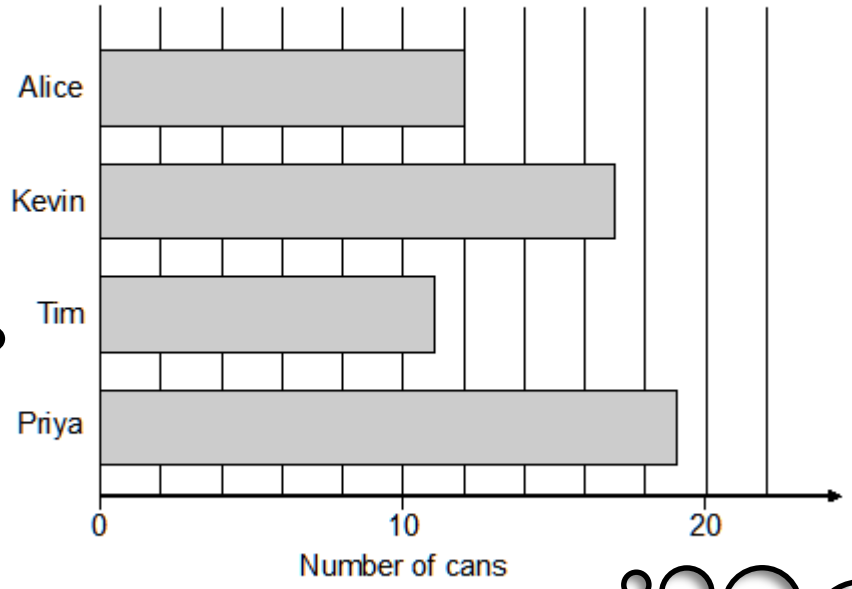
Tip - Graph questions

Always label the numbers and write the amount on the bar.

Horizontal bar graph - no different to a vertical bar graph

Some children collect cans for recycling.

Here is a chart of how many cans they collect in the first week.



How many cans has Kevin collected?

Nasty scale going up in 2s to catch you out.

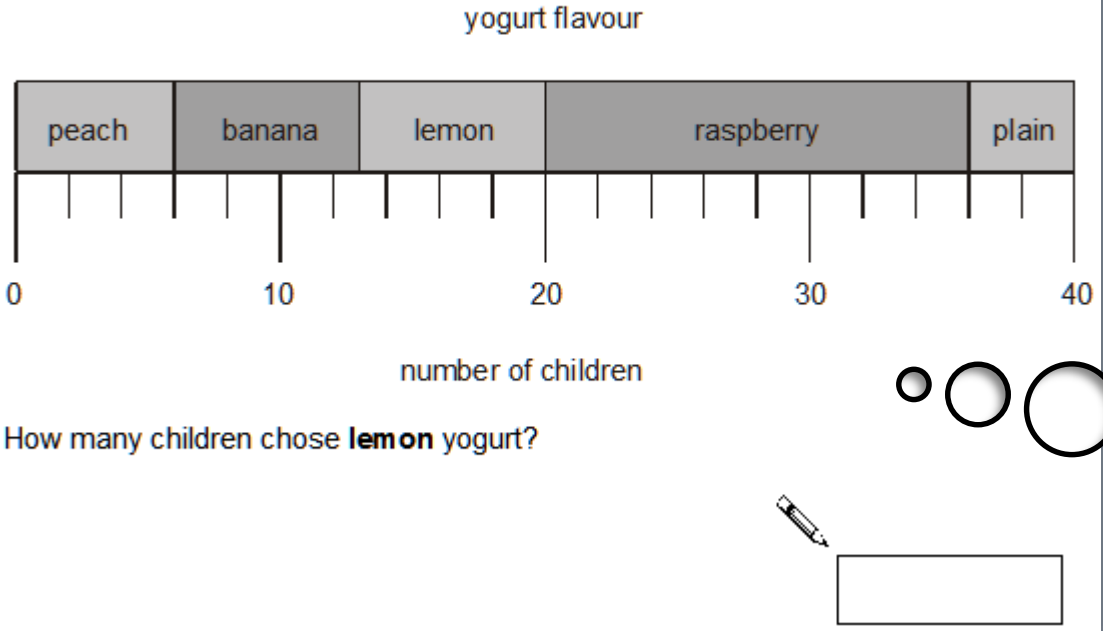
Label it before you start!

Tip - Graph questions

Write on the <u>whole</u> scale before you start.

40 children each chose their favourite flavour of yogurt.

This chart shows the results.



How many children chose **lemon** yogurt?

5 gaps between 0 and 10

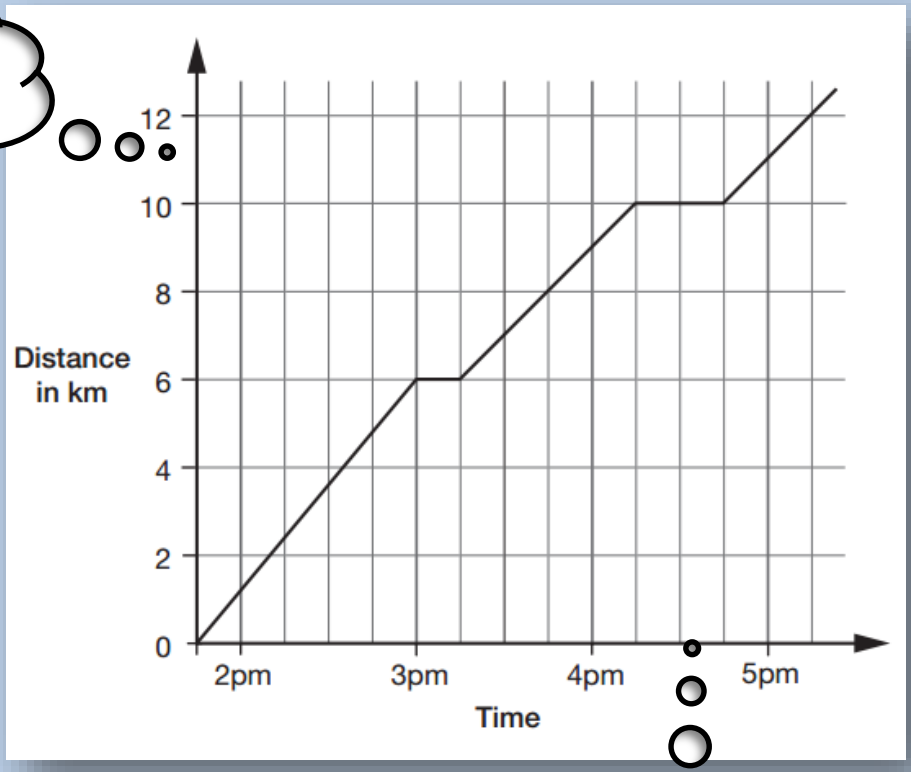
10 ÷ 5 = 2

Going up in 2's

Remember half of 2 = 1

Tip - Be careful that SCALES don't TRAP you!

Going up in 2's to catch you out



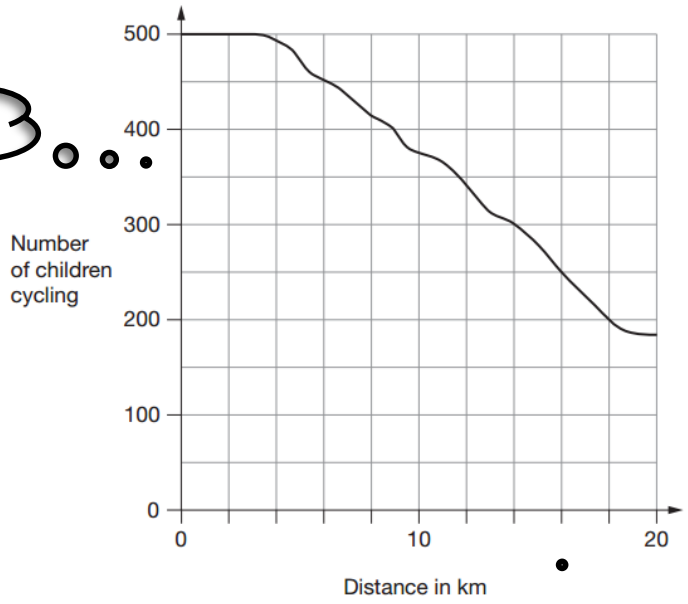
15 minute scale to make you do something silly

Tip - ALWAYS write the missing numbers in

Going up in 50's

19 500 children started a 20 kilometre sponsored cycle ride.

This graph shows how far they cycled.



At what distance were exactly half of the children still cycling?

Going up in 2's

Tip - Coordinates are like the scale on a graph

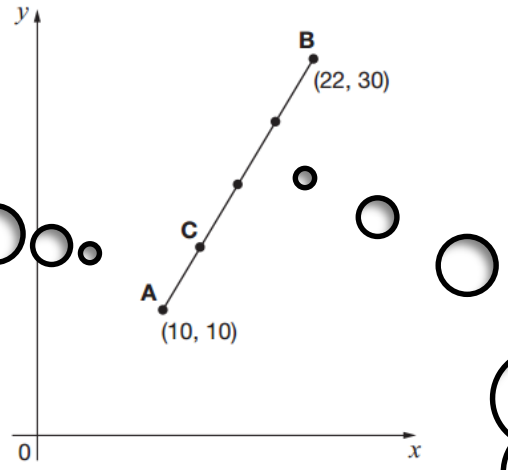
X AXIS

22 - 10

Divided by 4 gaps

It's going up in 3's

23 **A** and **B** are joined by a straight line on coordinate axes.



The dots on the line are equally spaced.

What are the coordinates of **C**?

C is (,)

30 – 10

Divided by 4 gaps

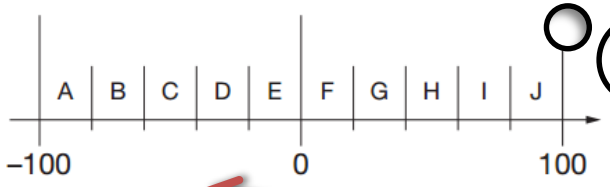
It's going up in 5's

Y AXIS

Tip – Fill in the scale FIRST.

22 Here is part of a number line.

It is divided into equal sections.



Write the letter of the section where each of these numbers belongs.

The number 99 has been done for you.

number	section
99	J
29	
−83	
−15	
44	

5 gaps between 0 and 100

100 ÷ 5 = 20

Fill in the WHOLE scale going up in 20s

REMEMBER

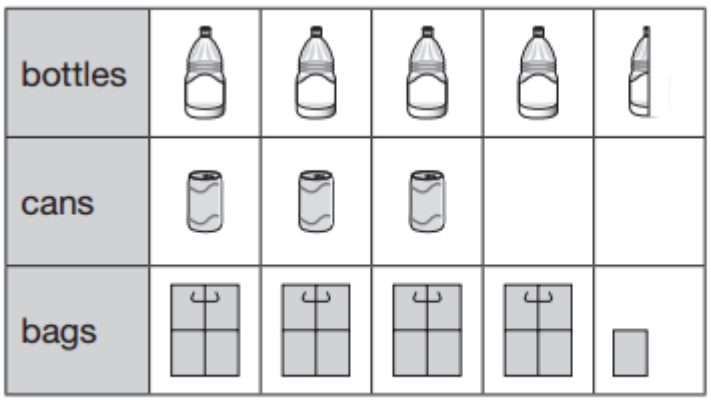
negative numbers get bigger to the LEFT

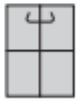
Now do this bit!

Tip - Check the 'key'. It's another SATS trap!

3 Class 6 collect litter from a park.

This chart shows some of the litter they have collected so far.

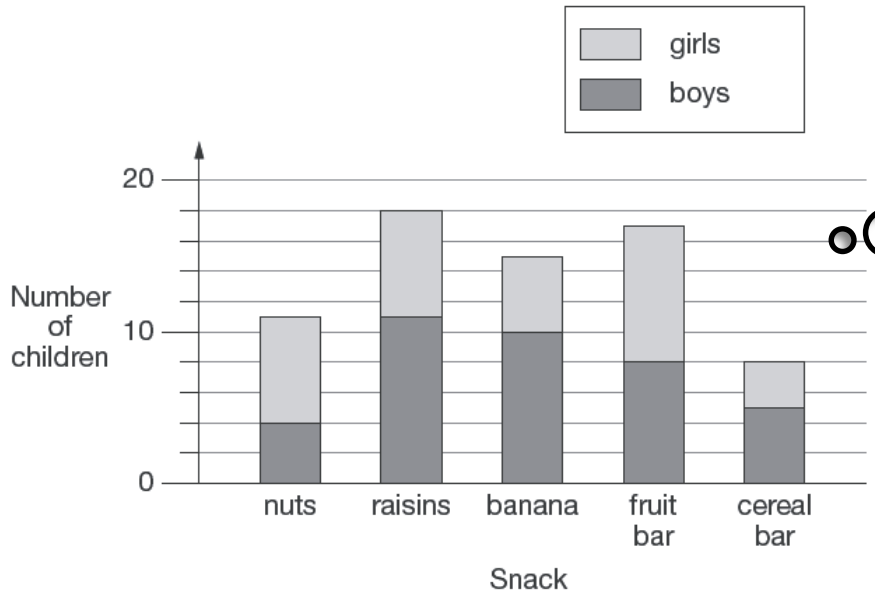


Key	
	= 100 bottles
	= 100 cans
	= 100 bags

Look at the key.

Tip - Careful when interpreting the 'bars'.
It's another SATS trap!

16 This chart shows the favourite snacks of some boys and girls.

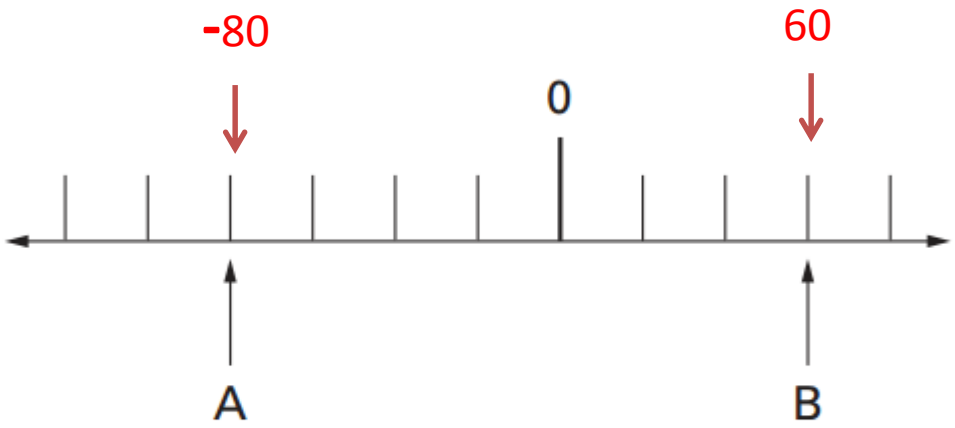


How many snacks were chosen by more girls than boys?

How many are boys? How many are girls?

Tip - Count the gaps on scales

A and **B** are two numbers on the number line below.



The **difference** between **A** and **B** is 140

Write the values of **A** and **B**.

140 ÷ 7 gaps = 20

Now work out the numbers.

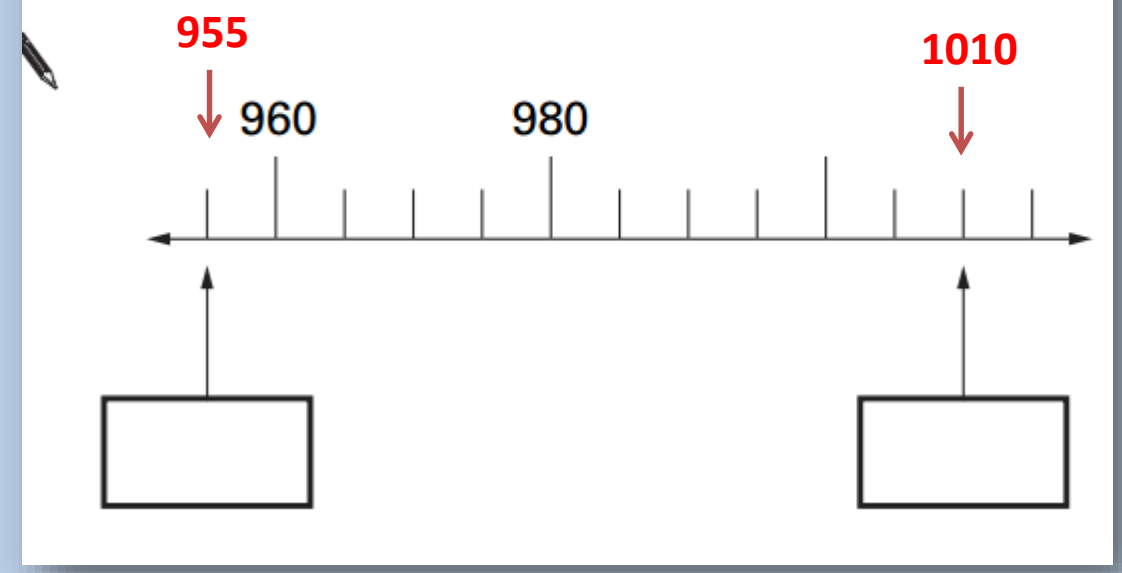
WARNING

Watch for MINUS numbers

Tip - Count the gaps on scales

Here is part of a number line.

Write the two missing numbers in the boxes.



980 – 960 = 20

20 ÷ 4 gaps = 5

The scale = 5

Now work out the numbers

Tip - Divide the chart up into fractions.

This chart has 8 marks around the edge

32 ÷ 8 = 4

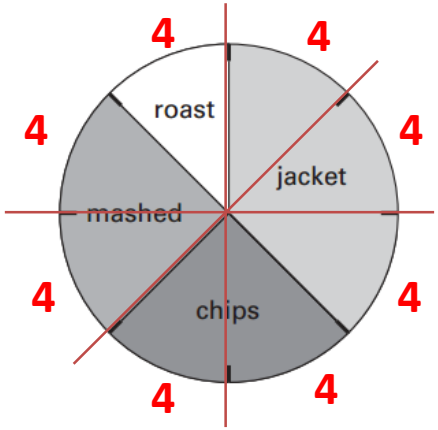
Each piece is 4

NASTY

32 ÷ 5 = 6 r 2

More than 4!

18 This pie chart shows how the children in Class 6 best like their potatoes cooked.



32 children took part in the survey.

Look at the four statements below.

For each statement put a tick (✓) if it is **correct**.
Put a cross (×) if it is **not correct**.

10 children like chips best. ☐

25% of the children like mashed potatoes best. ☐

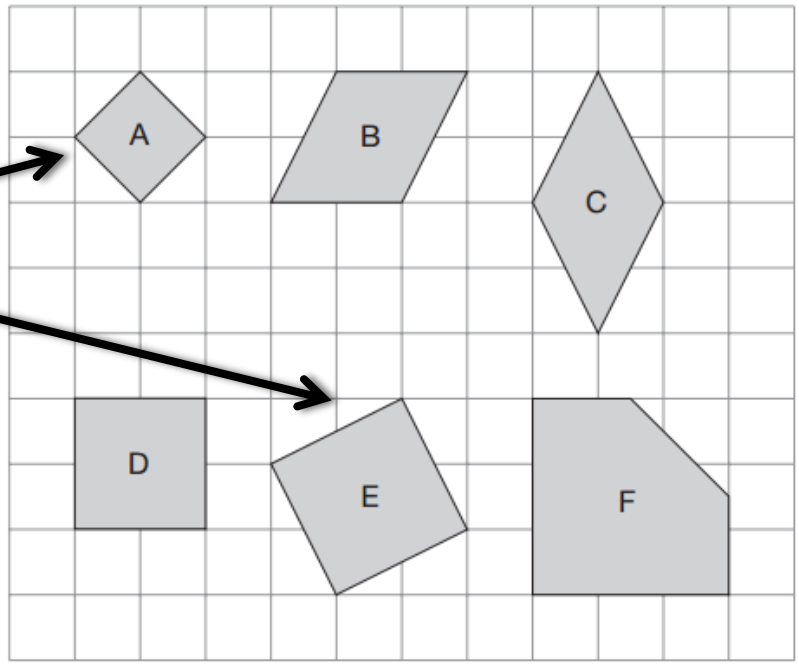
$\frac{1}{5}$ of the children like roast potatoes best. ☐

12 children like jacket potatoes best. ☐

Tip - Look for shapes that have been rotated

Rotated SQUARES

5 Here are six shapes on a square grid.



Write the letters of **all** the shapes that are squares.

Tip - MEASURE to the millimetre accurately

6 Here are four lines: A, B, C and D.

Which two lines have a total length of 18cm?

_____ and _____

Draw a straight line that is 3 centimetres longer than line **B**.

Use a ruler.

MUST be accurate

USE a good ruler

SATS trap – people add on 3mm not 3cms

Tip - READ the question again at the end

10 Here is a Carroll diagram for sorting numbers.

Write these **five** numbers in the correct places on the diagram.

25 247 7002 49 990

	odd	**not** odd
a 3-digit number		
not a 3-digit number		

SATS TRAP

It says put 5 numbers in

People ONLY put ONE number in each box.

One of the boxes will have 2 numbers

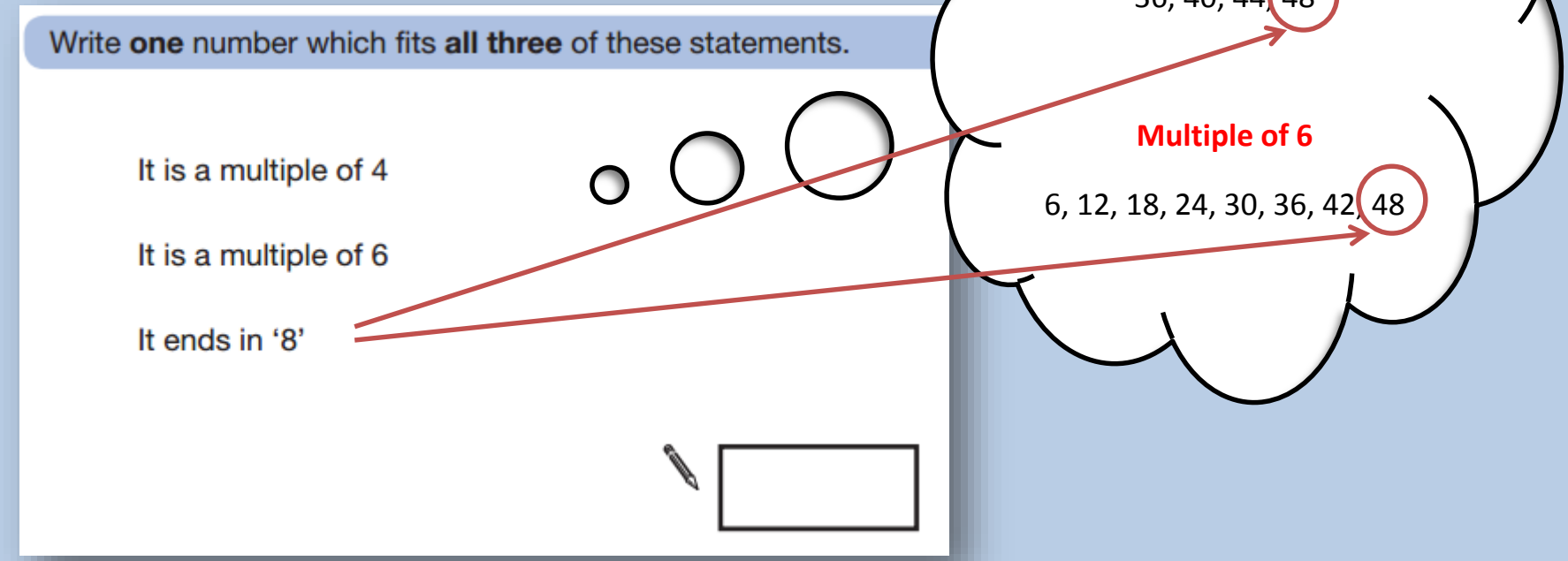
Tip - Make lists if it helps

Write **one** number which fits **all three** of these statements.

It is a multiple of 4

It is a multiple of 6

It ends in '8'

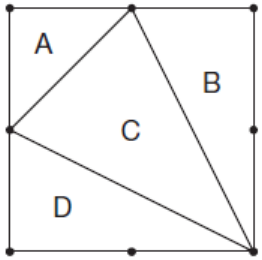


Tip – Look for right-angles

Use the edge of a square piece of paper

This diagram shows a square with dots at the vertices and at the middle of each side.

The square is divided into four triangles, **A**, **B**, **C** and **D**.



Write the letters of all the triangles that have a **right angle**.

_____

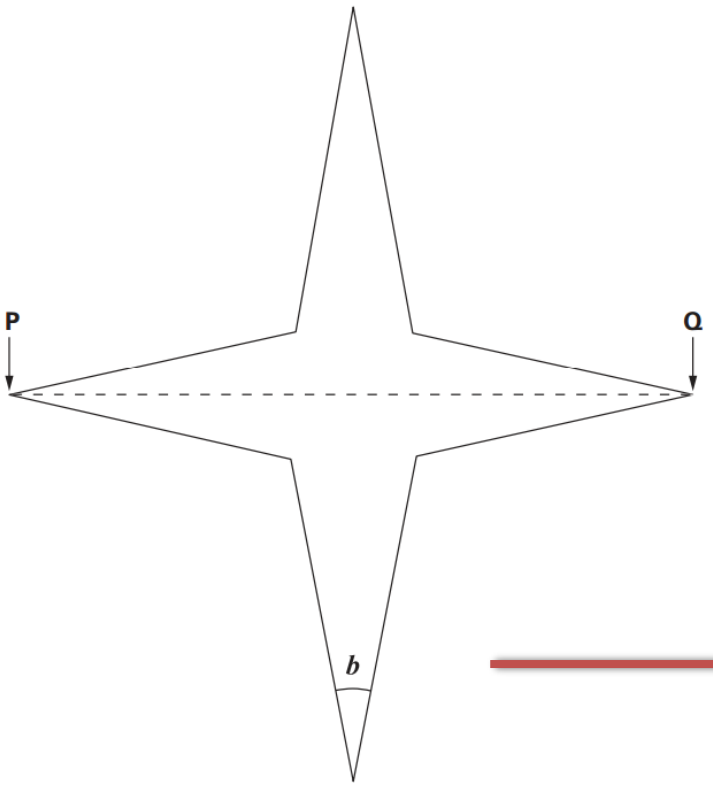
Put the corner of a square piece of paper in the corners of the shapes to check!

Tip – TURN your book around

Use a protractor (angle measurer) to measure **angle *b***.

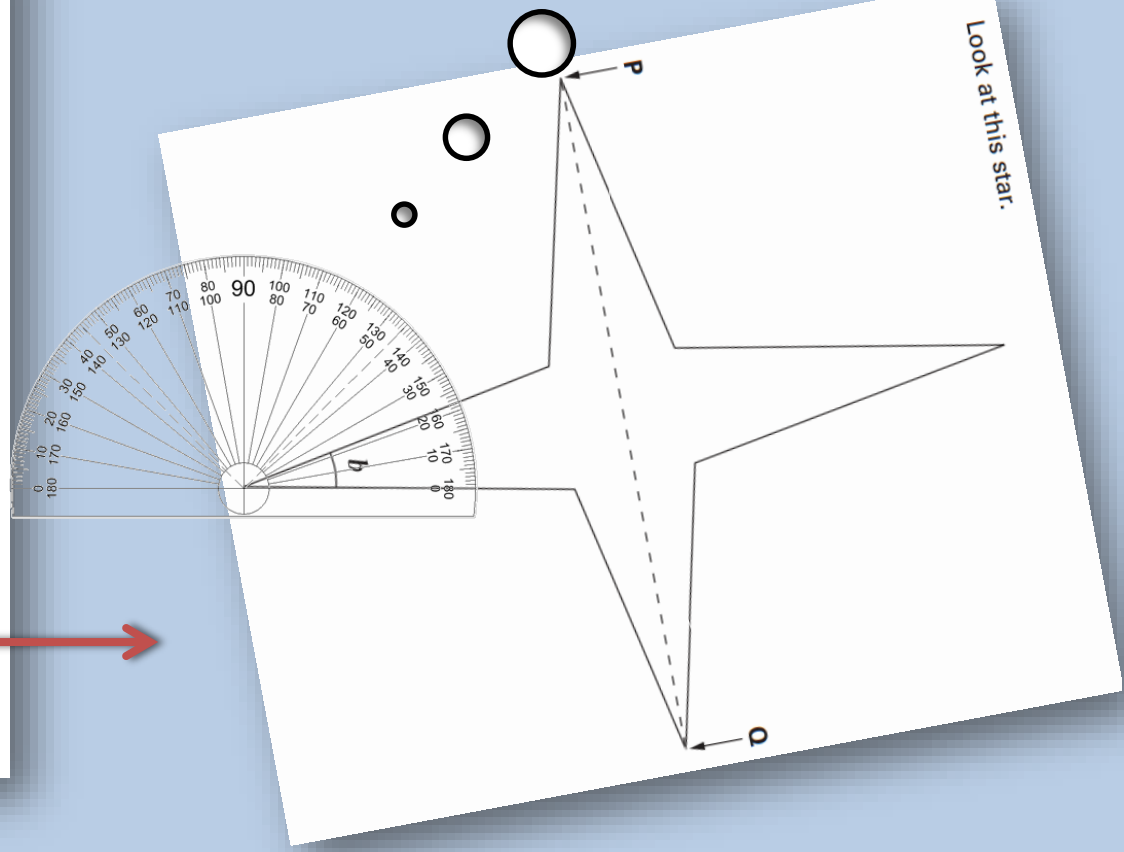
°

Look at this star.



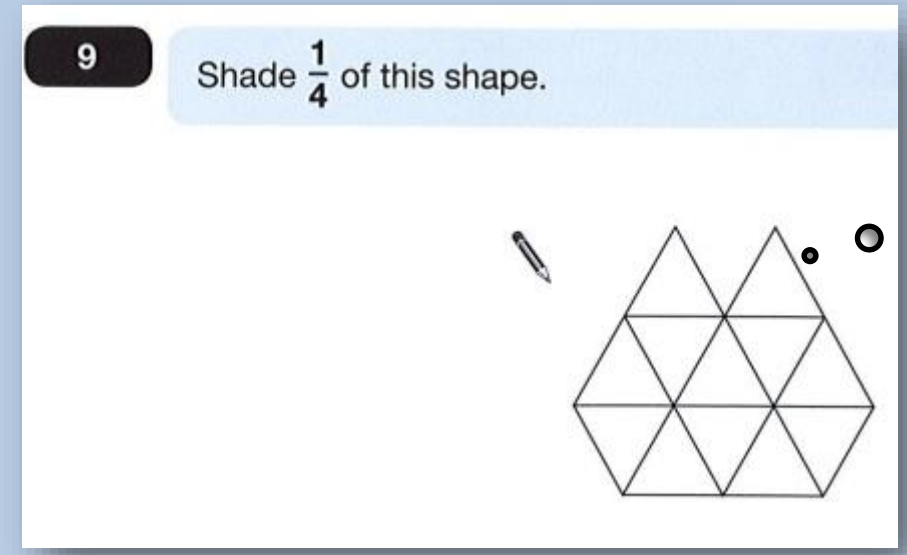
Getting a good BASE line can help you measure angles.

ESTIMATE first!



Tip – Fractions of shapes

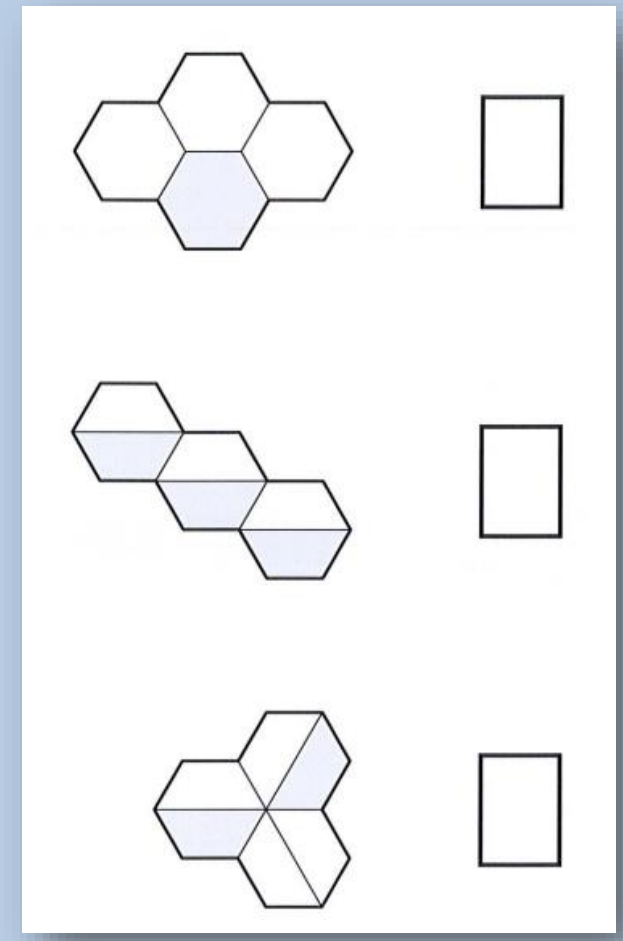
Count the total first



Count ALL the shapes first

Tip – Make sure the parts are the same size.

Count the total. Count how many shaded.



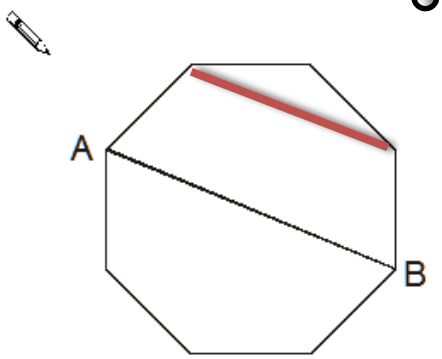
Check all the parts are the same size; these are!

Tip – KNOW your vocabulary

If you don't know make a good guess!

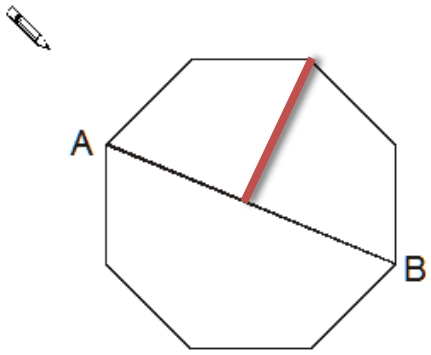
Here is a regular octagon with two vertices joined to make the line AB.

Join two other vertices to draw **one** line that is **parallel** to the line AB.



Here is the octagon again.

Join two vertices to draw **one** line that is **perpendicular** to the line AB.



Parallel

(look at the two ll's in parallel.)

They NEVER meet!

Perpendicular

Meet at a RIGHT ANGLE

Level 5 Tip

Tip – Ratio: Divide by one number then times by the other

17 A gardener plants tulip bulbs in a flower bed.

She plants 3 red bulbs for every 4 white bulbs.

She plants 60 red bulbs.

How many **white** bulbs does she plant?

60 ÷ 3 = 20

20 x 4 = 80

Level 5 Tip

Tip – Ratio: Divide by one number, then multiply by the other

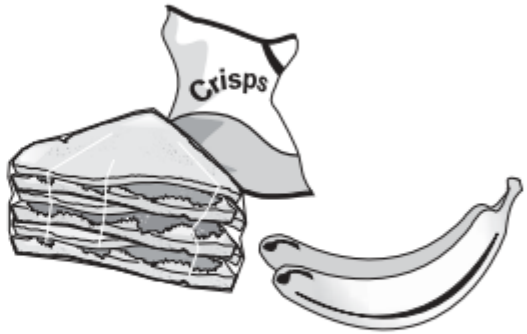
David and his friends prepare a picnic.

Each person at the picnic will get:

3 sandwiches

2 bananas

1 packet of crisps



The children pack **45** sandwiches.

How many **bananas** do they pack?

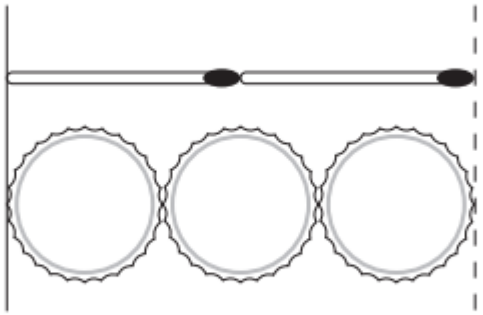
45 ÷ 3 = 15

15 x 2 = 30

Level 5 Tip

Tip – Ratio: Divide by one number then times by the other

Two matchsticks have the same length as three bottle tops.



How many bottle tops will have the same length as 50 matchsticks?

50 ÷ 2 = 25

25 x 3 = 75

Tip – Use tracing paper

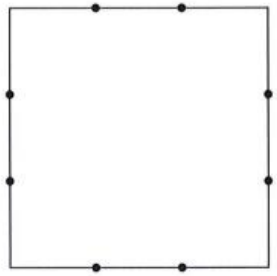
Trace the shape to check the parts are equal

This square has two dots on each side.

The dots are equally spaced.

Join two dots to divide the square into **two equal parts**.

Use a ruler.



Trace your half and check the other half is the same size

Tip – Don't fall into TRAPS

If it looks too easy – there could be a trap!

People see the last 5 and round up to 6.

It's a trap!

Write in the missing numbers.

Number	Rounded to the nearest **whole** number
5.05	
5.55	
4.45	
4.54	

Tip – If it seems EASY you're probably doing it WRONG!

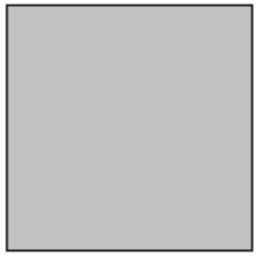
Look for the trap!

People try to share 72 in half.

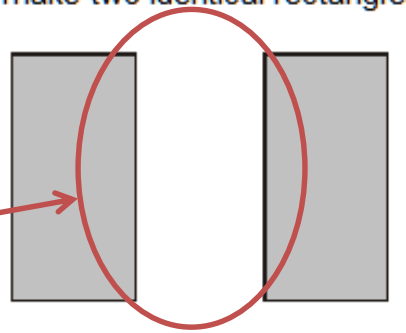
It's a trap!

There are 2 NEW outsides to the shape in the middle

The perimeter of a square is 72 centimetres.



The square is cut in half to make two identical rectangles.

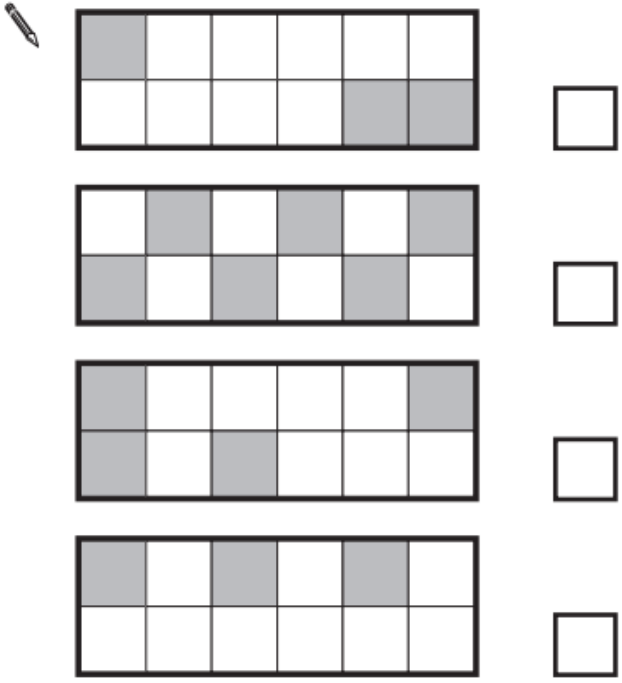


What is the perimeter of **one** rectangle?

Tip – Write down ALL your working out down the side

Don't write in the answers until all your working out has been WRITTEN down

Tick (✓) each shape that is exactly $\frac{1}{4}$ shaded.



Tip – Write the answers to brackets ABOVE them first

Write the correct sign >, < or = in each of the following.

Always do the bracket FIRST.

Write them **ABOVE**

Then finish the calculation

15 (10 + 5) – 9	6 < 14	19 (10 + 9) – 5
9 3 × (4 + 5)		12 (3 × 4) + 5
40 (10 × 4) ÷ 2		2 10 × (4 ÷ 2)

REMEMBER: the crocodile eats the biggest meal

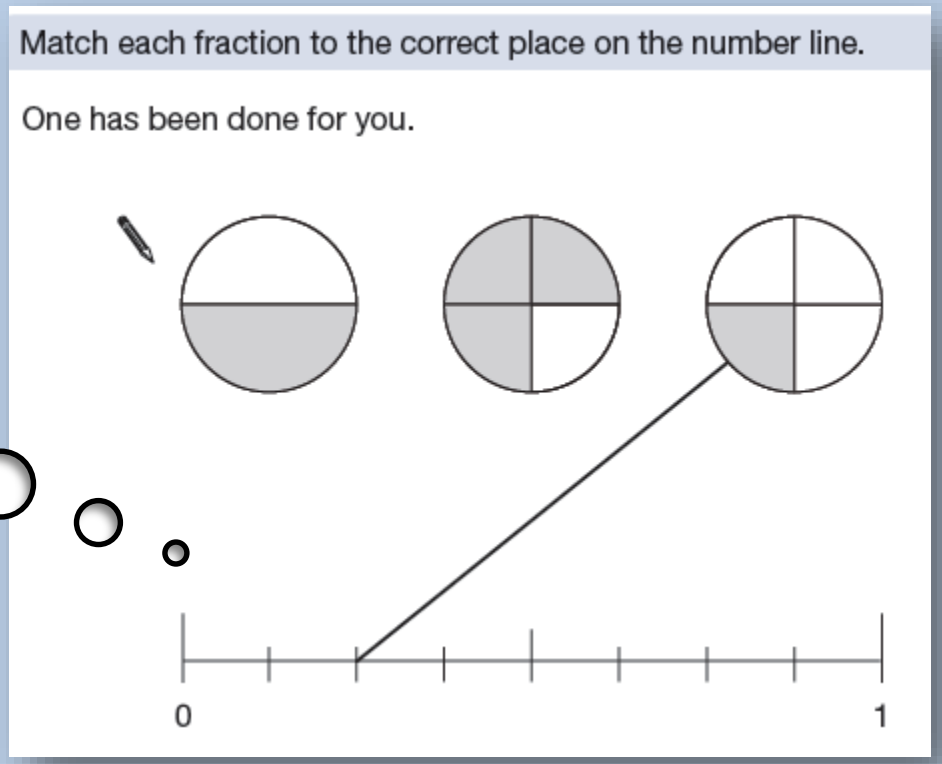
Tip – Write all the fractions on the line.

Write the <u>equivalent</u> fractions above them

This line is marked in eighths.

You need quarters.

2/8 = 1/4



Tip – Make all the parts the same size.

Draw in the missing lines

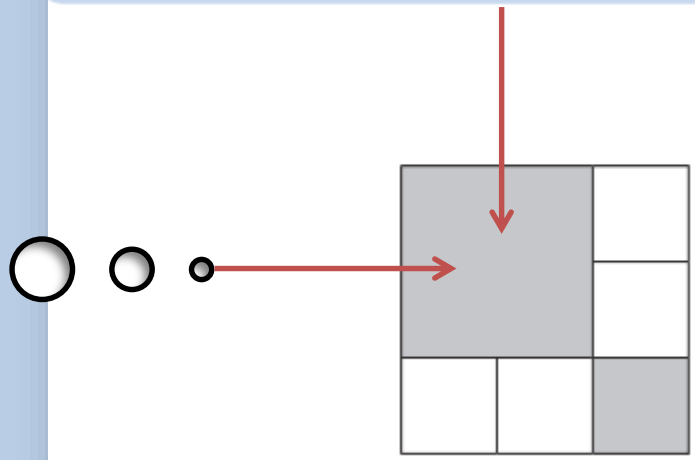
Draw in the missing lines.

5 shaded out of 9

Answer 5/9

The diagram is made of squares.

What fraction of the diagram is shaded?



Tip – Make all the parts the same size.

Draw in the missing lines

Draw in the missing lines.

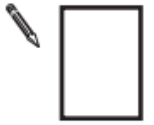
3 shaded out of 15

Answer 3/15

or simplified 1/5

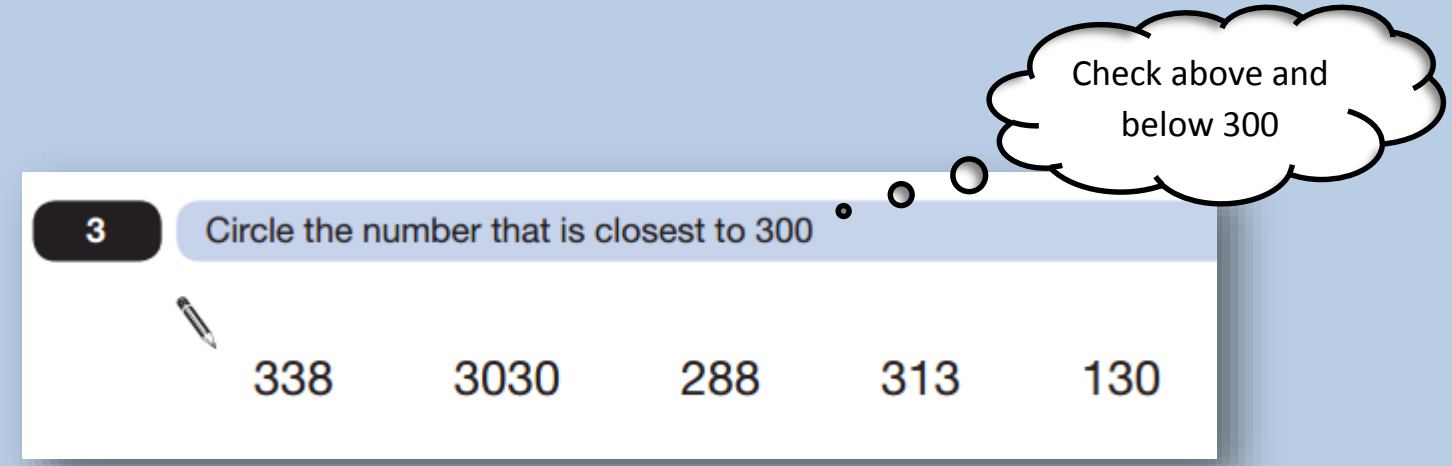
11 This diagram shows a shaded rectangle surrounded by squares.

What fraction of the diagram is shaded?



Tip – Check BELOW and ABOVE the number

This is TRAP to catch you out!

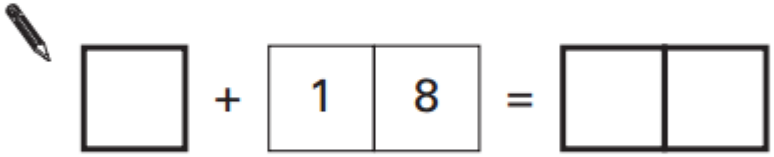


Tip – Can you use numbers MORE than once

Each missing digit in these calculations is **2**, **5** or **7**

Write in the missing digits.

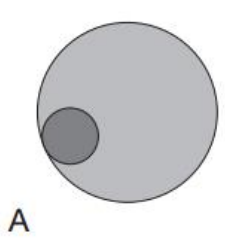
You may use each digit more than once.



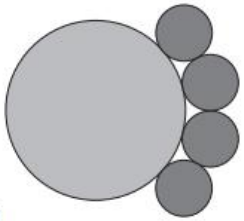
On this question you CAN!

Tip – Look for CLUES for how many answers there are

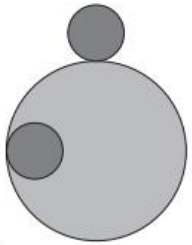
10 Here are four designs made from two sizes of circles.



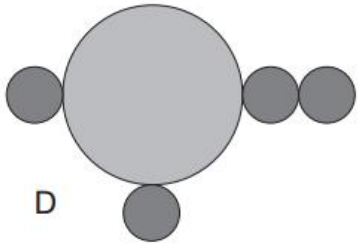
A



B



C



D

Write the letters of **all** the designs that have line symmetry.

_____ 10i

10ii

2 marks

LETTERS means there is more than one

2 marks shows there's more than one

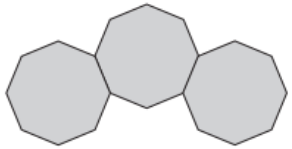
Tip – Turn your mirror horizontally, vertically AND diagonally

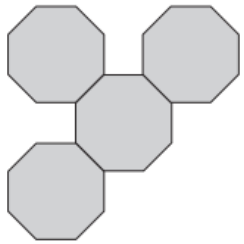
Make sure both halves look the same

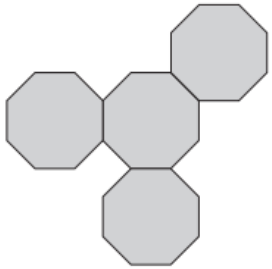
3 These diagrams are made from regular octagons.

Draw the line of symmetry on each diagram.

Use a ruler.

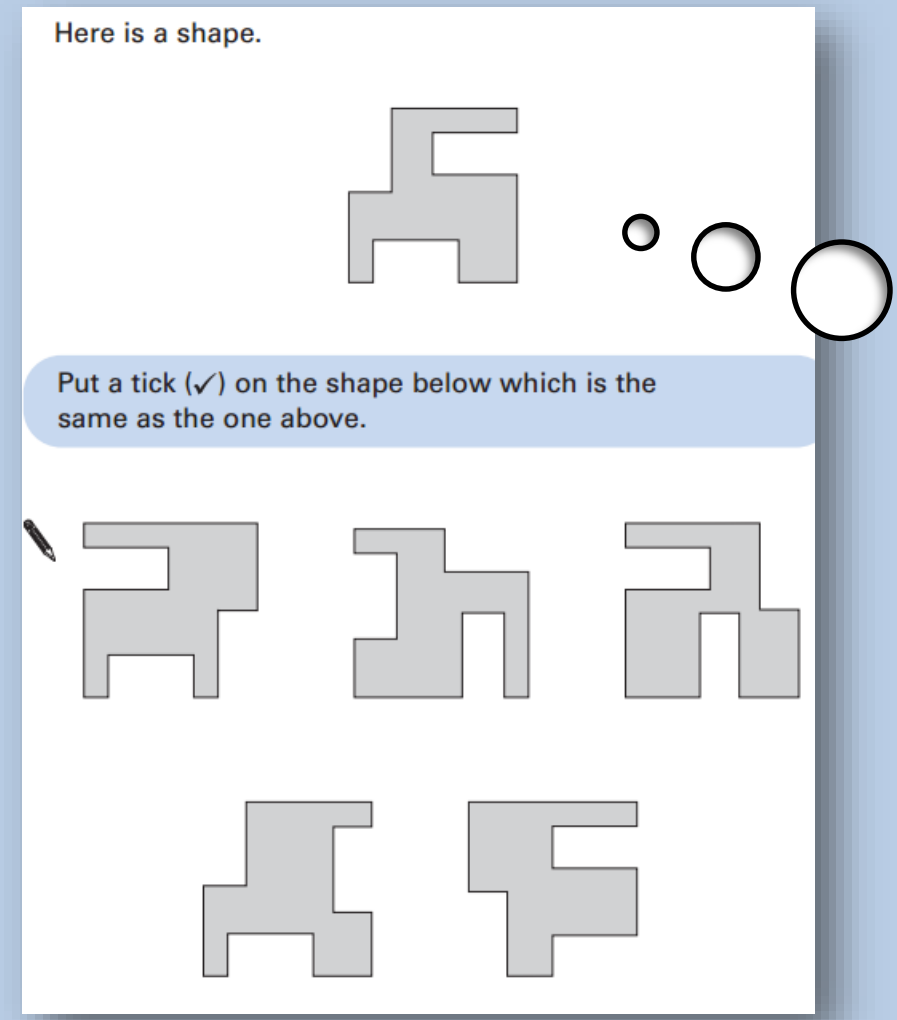






Tip – TRACE it and rotate it!

SAT's Trap – You are too lazy to trace it



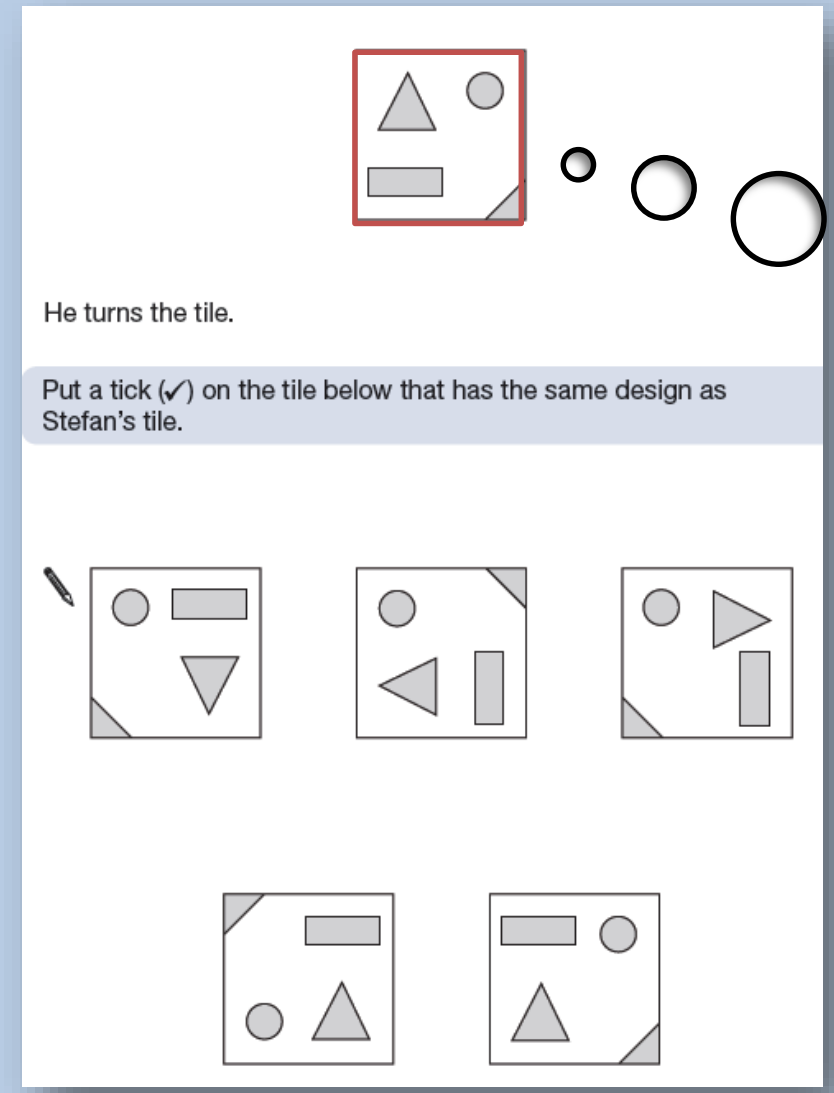
Trace the shape, turn it around, match it up

Sat's Trap

You think you know the answer so you don't bother checking.

Tip – USE the tracing paper

Trace the BOX outline to help turn the shape



Trace the box as well as the shape to help turn it

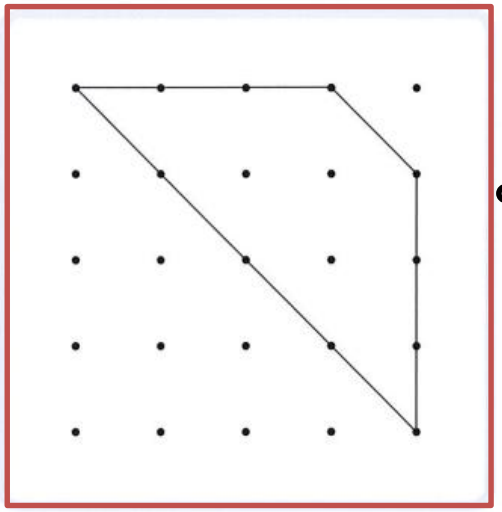
Warning

DON'T flip the tracing paper or you will get a reflection (SATS Trap)

Tip – Use tracing paper

Trace the BOX outline to help turn by a quarter

11 Kirsty draws this shape on a grid.



She turns her grid one quarter turn clockwise.

Draw the shape in its new position after the turn.

Trace the box as well as the shape to help turning by 90 degrees

Tip – Use tracing paper

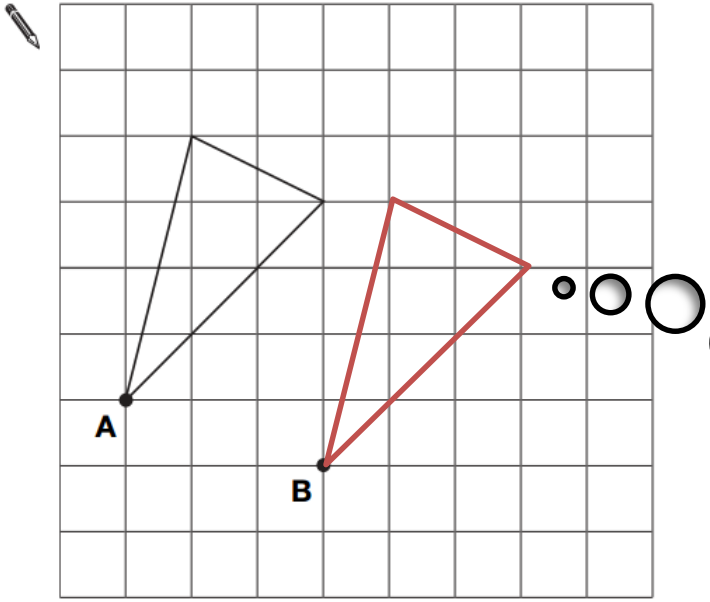
Use the GRID to position accurately

Here is a triangle on a square grid.

The triangle is translated so that point **A** moves to point **B**.

Draw the triangle in its new position.

Use a ruler.



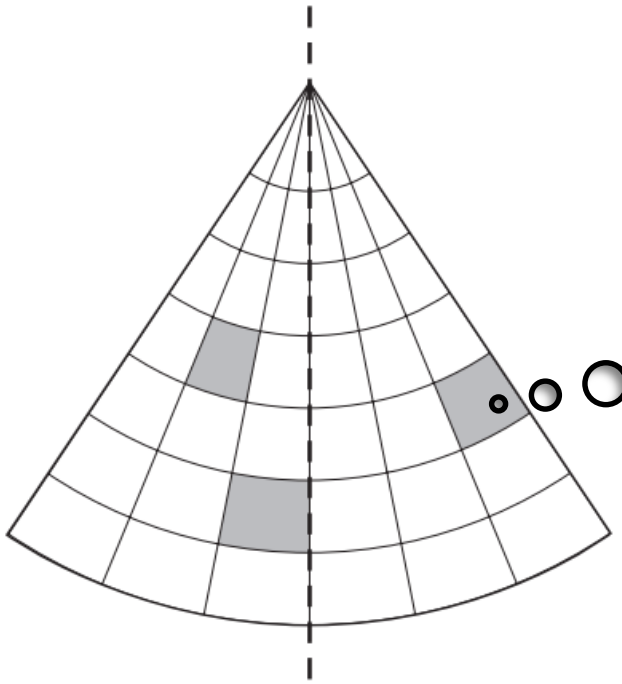
Translate – don't twist the tracing paper, just SLIDE

Line the triangle up with the corners of the grid squares ACCURATELY

Tip – Check both sides are the SAME

Use your mirror !

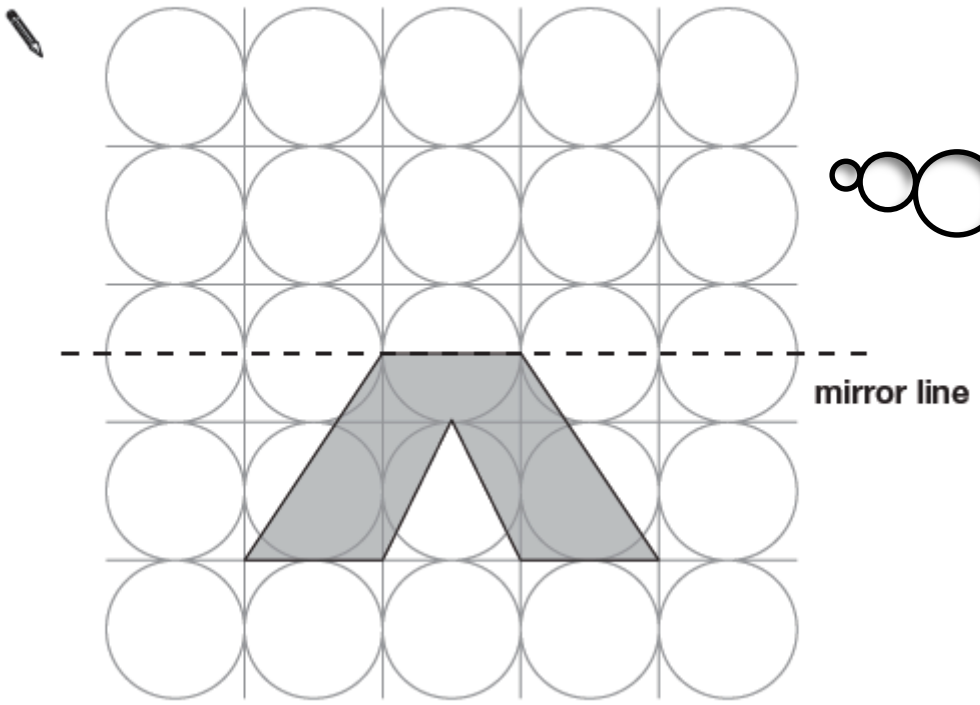
2 Draw the reflection of **all** the shaded shapes in the mirror line.



This square needs shading on the other side too!

Tip – Check both sides are the SAME
Look at the feint circles and lines
Put dots first - check with your mirror afterwards

Draw the reflection of the shaded shape in the mirror line.



Make sure you do a reflection.

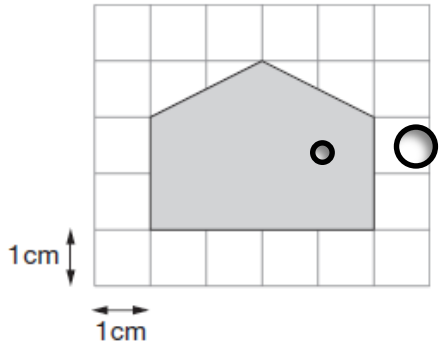
TIP to avoid a Sat's Trap

Bend the page of your book over a bit so that you can imagine where it will flip on to.

Tip – Area questions with the shape over the grid

Draw the lines over the shape and then count

18 Here is a shaded shape on a 1cm square grid.



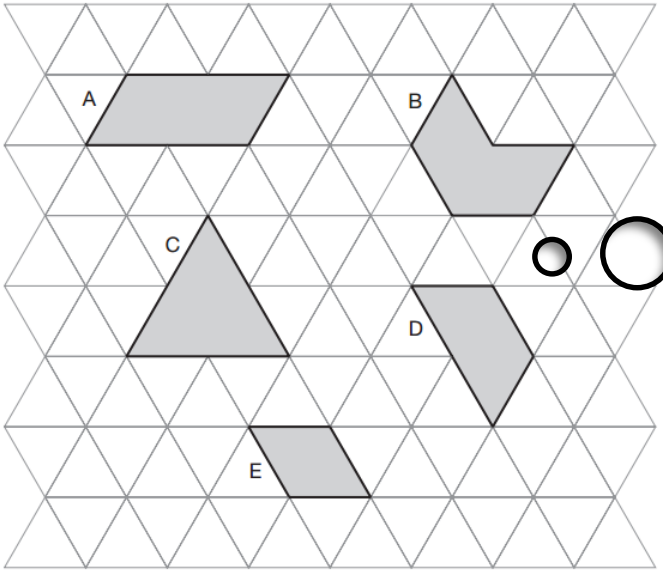
What is the **area** of the shaded shape?

cm^2

Draw the lines over the shape – it will make them easier to count!

Tip – If you aren't sure remove the ones that must be wrong

14 Here are five shapes made from equilateral triangles.



Write the letter of the shape that is a **rhombus**.

_____

Write the letter of the shape that has only **one** pair of parallel sides.

_____

I know C is a triangle.

I know D is a trapezium.

I know B is a hexagon.

I think A is a parallelogram.

So I'm going to guess 'E'

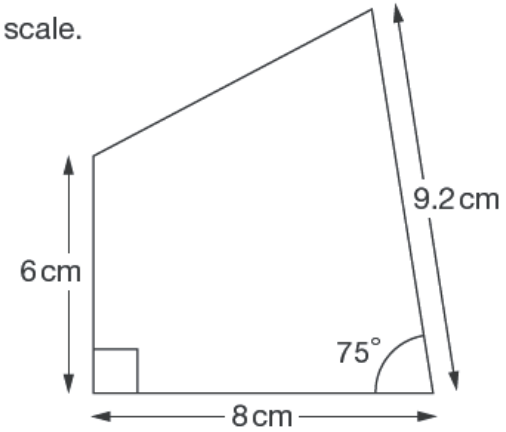
Draw all the 'pairs of parallel sides on the shapes first.

Tip – For drawing questions

Start by measuring the line and then draw the angle

24 Here is a sketch of a quadrilateral.

It is not drawn to scale.



Draw the full-size quadrilateral **accurately** below.

Use a protractor (angle measurer) and a ruler.

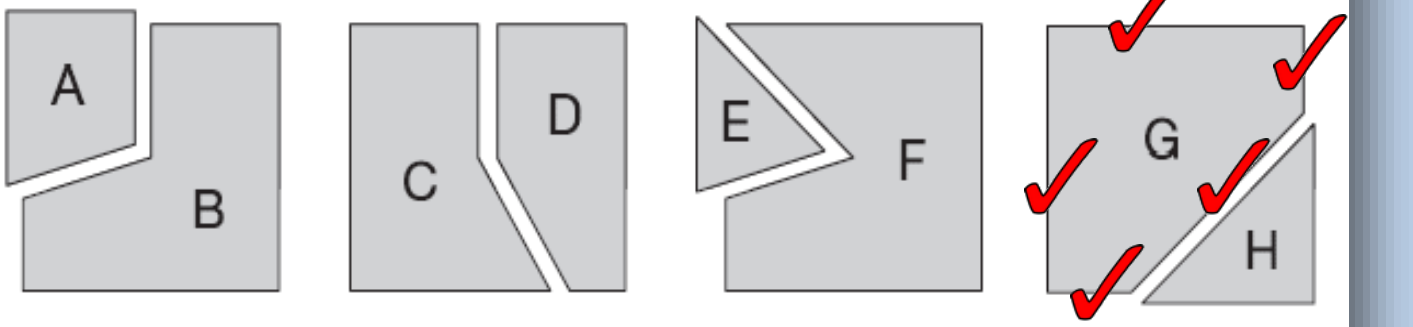
Two of the lines have been drawn for you.

Start by drawing the 8cm line and then measure the angle.

Tip - Check how many sides a shape has

Tick them off

Each of these four squares has been cut into two new shapes.



Tick off the sides as you count them!

Tip – Questions involving BRACKETS

Do them FIRST

Remember – do the brackets first and separately.

Write the answer to the brackets above

Here are five number cards.

$\frac{1}{2}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$ $3\frac{1}{2}$

Use **three** of the number cards to make this calculation correct.

(☐ + ☐) × ☐ = 10

14

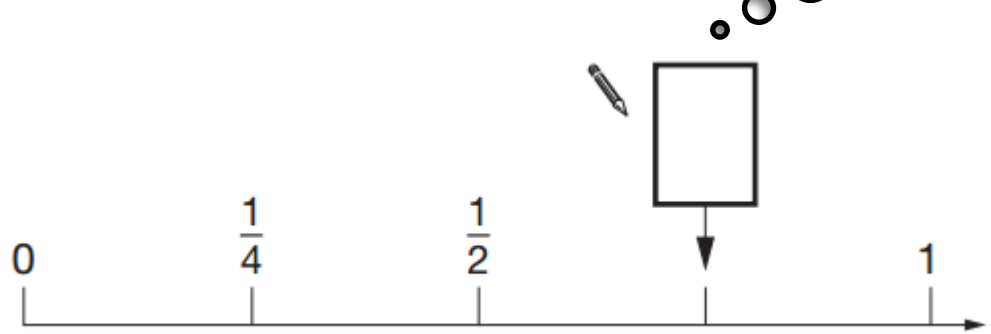
1 mark

Tip – STOP and THINK

It's a SATS Trap – everyone writes one third!

8 Here is part of a number line.

Write in the missing fraction.



The answer is ¾.

Stop and THINK

Tip – Remember the rules for fractions of numbers

Divide by the bottom

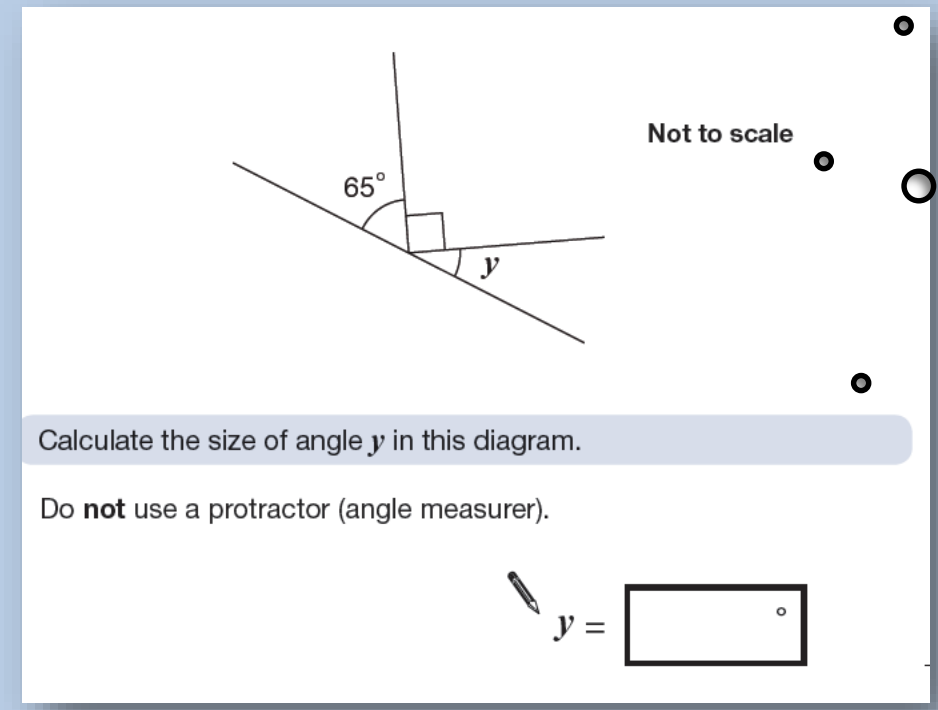
Times by the top

Calculate $\frac{7}{16}$ of 288

20

1 mark

Tip – Remember angle rules



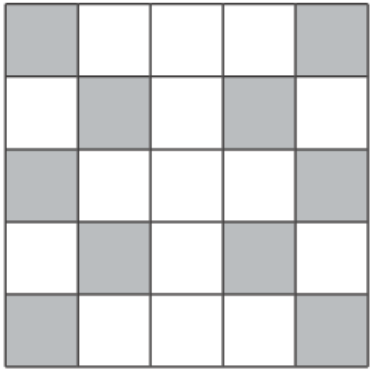
Remember – angles on a straight line add up to 180°

Remember – **NOT TO SCALE** means, you don't measure it!

Remember – a square in a corner of an angle means 90 degrees

Tip - Remember percentage means ‘out of 100’

Here is a pattern on a grid.



What **percentage** of the grid is shaded?

%

Find the fraction first and then change it to a fraction out of a hundred.

10 out of 25 = 10/25

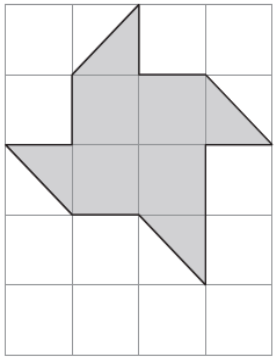
Multiply the top and bottom by 4 to change them into hundredths.

40 out of 100 = 40/100

= 40%

Tip - Remember percentage means ‘out of 100’

Here is a grid of 20 squares.



What percentage of the grid is shaded?

Find the fraction first and then change it to a fraction out of a hundred.

6 out of 20 = 6/20

Multiply the top and bottom by 5 to change them into hundredths.

30 out of 100 = 30/100

= 30%

Tip – Look for equivalent fractions to make the question easier

Circle the fraction that is greater than $\frac{1}{2}$ but less than $\frac{3}{4}$

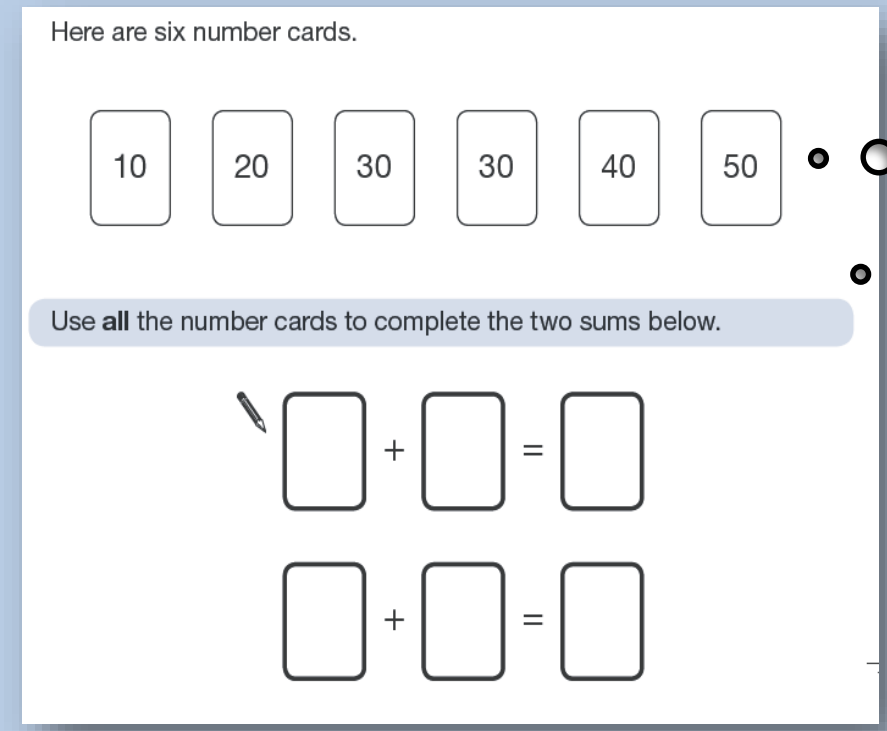
$\frac{7}{8}$ $\frac{2}{5}$ $\frac{1}{3}$ $\frac{5}{8}$ $\frac{3}{6}$

1 mark

Look for equivalent fractions to help

Tip - When you are asked to use ALL of the numbers

Use them all ONCE!



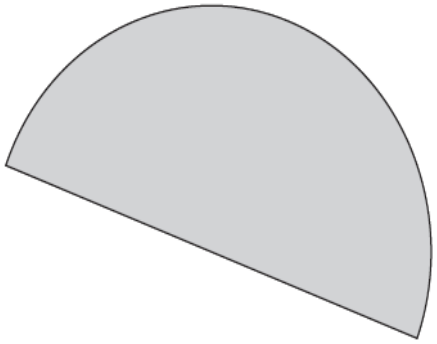
Cross the numbers off as you put them in

Only use the numbers In the boxes.

Tip – Check the Units in the answer

Measure accurately the length of the straight edge.

Give your answer in **centimetres**.



cm

If you don't give your answer in cm you will NOT get a mark!

Tip – TRAIN and BUS timetable journeys go vertically

	1st	2nd	3rd	4th	5th	6th
Perth	07:11	07:20	07:27	07:35	07:43	07:55
Maylands	–	07:28	07:33	07:43	07:49	08:03
Ashfield	–	–	07:38	–	07:54	–
Success Hill	07:25	–	07:41	–	07:57	–
Midland	07:32	07:41	07:48	07:56	08:05	08:16

Here is part of the morning train timetable from Perth to Midland in Australia.

What time is the first train from Maylands that stops at Success Hill?

Maylands :

The BUS or TRAIN travels to each stop.

A DASH means it doesn't stop!

Tip – TEST it! Does it work EVERY time

18 Dev says,

'When you halve any number that ends in 8 the answer always ends in 4'.

Is he correct?
Circle **Yes** or **No**.

Yes / No

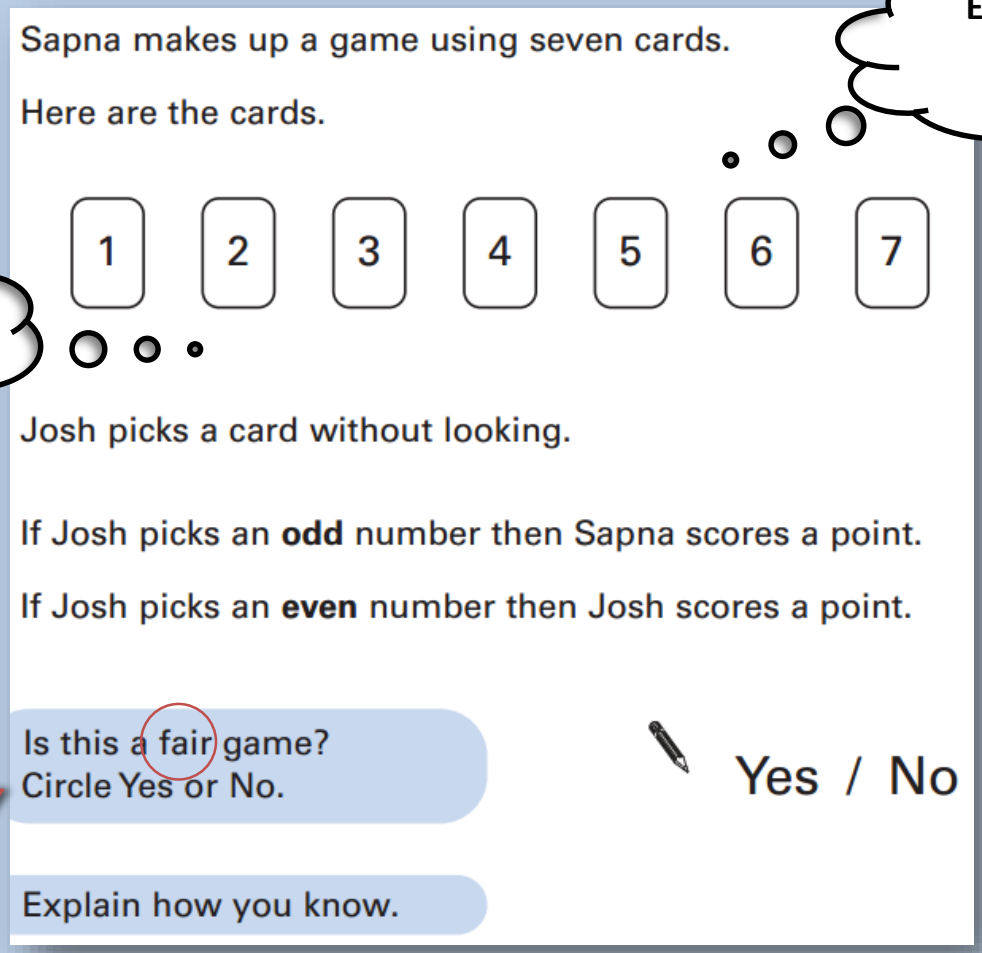
Explain how you know.

Write down how you tested it to prove it

Tip – Explain PROBABILITY with FRACTIONS

Even number 3/7 chance

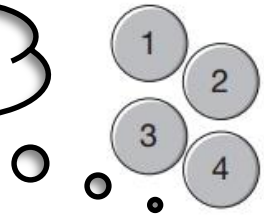
Odd number 4/7 chance



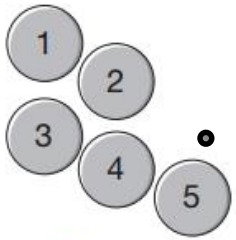
PROBABILITY

Tip – Use WHEREAS in your explanation

25 Chen and Megan each have a set of numbered counters.



Chen



Megan

They each take one of their own counters without looking.

Chen says,

'I am more likely than Megan to get a 4'

Is Chen correct?
Circle **Yes** or **No**.

Yes / No

Explain how you know.

Chen has ¼ chance of getting a 4

Megan has $\frac{1}{5}$ chance of getting a 4

Chen has a ¼ chance of getting a 4 whereas Megan has a $\frac{1}{5}$ chance of getting a 4.

A quarter chance is bigger.