

2019 national curriculum tests

Key stage 2

Mathematics

Paper 3: reasoning

First name						
Middle name						
Last name						
Date of birth	Day		Month		Year	
School name						
DfE number						



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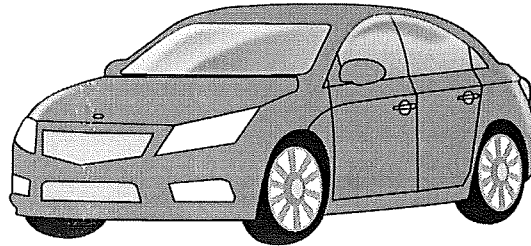
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1

The **original** price of this car is £8,999

Sale
£1,100 off



What is the **sale** price of the car?

$$\begin{array}{r} 8999 \\ - 1100 \\ \hline 7899 \end{array}$$

£ 7899

1 mark



2

3,576,219

Which digit is in the **ten thousands** place?

3 5 7 6 2 1 9
 T H T O

7

1 mark

Round 3,576,219 to the **nearest million**.

3 5 7 6 2 1 9
 ↑

4 000 000

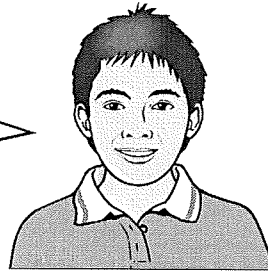
1 mark



3

Dev says,

I had £10
I gave some money away.



Which expression shows how much money Dev has left?

a is the amount of money, in pounds, that Dev gave away.

Tick one.

£10 - ?

$10 + a$

$10 \div a$

$a - 10$

$10 - a$

$a \times 10$

1 mark



4

Write these masses in order, starting with the **lightest**.

1.25 kg

0.99 kg

1.025 kg

0.009 kg

0.009 kg

0.99 kg

1.025 kg

1.25 kg

lightest

1 mark

5

Write the missing digits to make this **addition** correct.

$$\begin{array}{|c|c|c|} \hline 1 & 2 & 8 \\ \hline \end{array} + \begin{array}{|c|c|} \hline 7 & 2 \\ \hline \end{array} = 200$$

1 mark

$$\begin{array}{r} 128 \\ + 72 \\ \hline 200 \end{array}$$



H 0 0 0 8 0 A 0 7 2 4

7

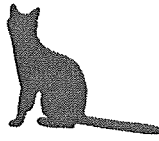
This picture shows the masses of eight kittens.



305 g



375 g



310 g



255 g



275 g



410 g



360 g



345 g

What is the **difference** in mass between the heaviest kitten and the lightest kitten?

$$\begin{array}{r} 310 \\ 410 \\ - 255 \\ \hline 155 \end{array}$$

155	g
-----	---

1 mark

The masses of the kittens are to be put in four groups.

Write the missing numbers in the table.

One has been done for you.

Mass in g	Number of kittens
250–299	2
300–349	3
350–399	2
400–449	1

= 8

1 mark



8

Ken is playing a game. He has 4,289 points.

Then he scores another 355 points.

Ken's target is 6,000 points.

How many **more** points does Ken need to reach his target?

Show your method

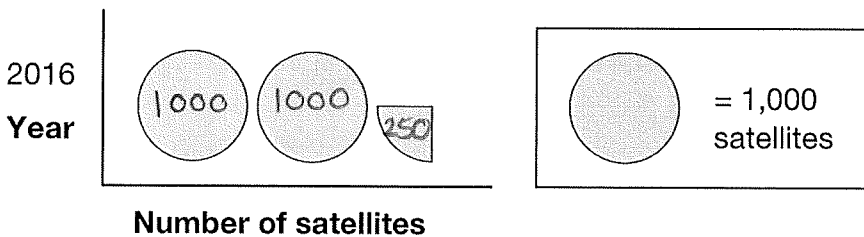
			4	2	8	9			5	9	9											
			<u>+</u>	3	5	5			8	0	0	0										
				4	6	4			<u>-</u>	4	6	4	4									
										1	3	5	6									

1356

2 marks

9

This pictogram shows the number of satellites above the Earth in 2016.



$$4 \overline{) 1000} \begin{matrix} 250 \\ \underline{1000} \\ 0 \end{matrix}$$

How many satellites were above the Earth in 2016?

$$1000 + 1000 + 250$$

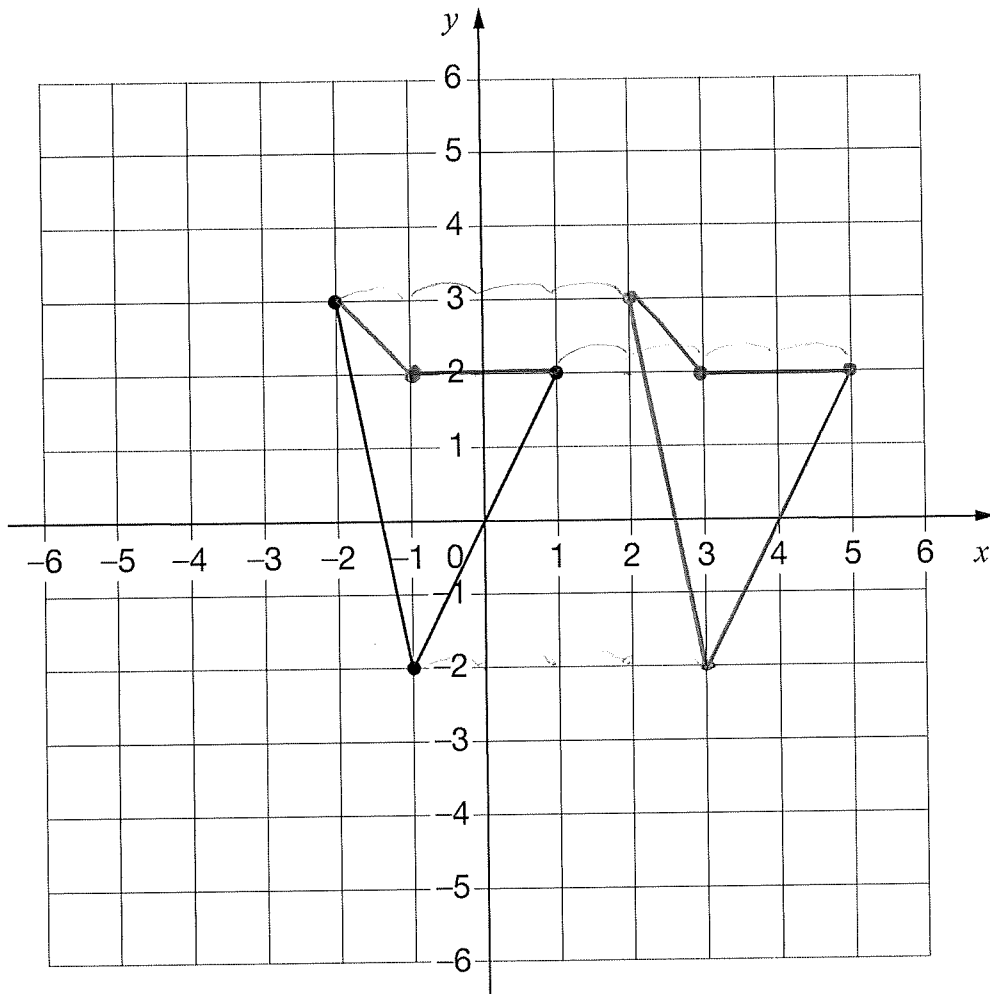
2250

1 mark



10

On the grid there are three points joined by two lines.



Lara plots **another point** on the grid at $(-1, 2)$.

She joins the points to make a quadrilateral.

Complete Lara's quadrilateral on the grid.
Use a ruler.

1 mark

Then Lara translates the quadrilateral **4 squares to the right**.

Draw the quadrilateral in its new position on the grid.

1 mark



H 0 0 0 8 0 A 0 1 1 2 4

11

Here are five numbers.

~~2~~ 3 4 5 6
 P P P

Write each number on the correct cards.

The number 2 has been written on the correct cards for you.

Prime numbers
2 3 5

Factors of 12
2 6 3 4

Factors of 15
3 5

2 marks

$$2 \times 6$$

$$3 \times 4$$

$$1 \times 12$$

$$1 \times 15$$

$$3 \times 5$$

12

Amina's bed is 190 cm in length and 91 cm in width.

She is making a **one-tenth** scale model of the bed.

What are the length and width of Amina's model?

$$190 \div 10 = 19$$

length =

19	cm
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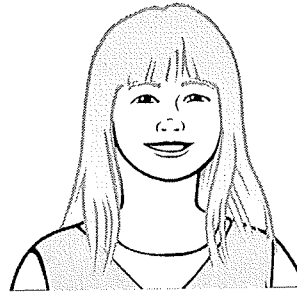
$$91 \div 10 = 9.1$$

width =

9.1	cm
-----	----

1 mark





Kirsty says,

When you double the size of an acute angle, you always get an obtuse angle.

Explain why Kirsty is **not** correct.

An acute angle is an angle less than 90° .

A 10° angle doubled would be 20° , so it is still an acute angle and not obtuse.

1 mark



14

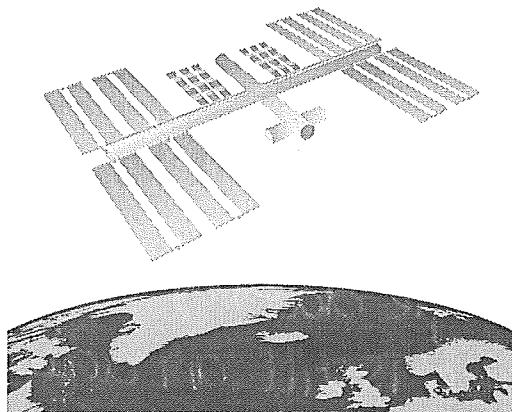
How many days are there in September, October and November altogether?

$$30 + 31 + 30$$

91 days

1 mark

15



The International Space Station orbits the Earth at a height of 250 miles.

What is the height of the International Space Station in **kilometres**?

Use 8 kilometres equals 5 miles.

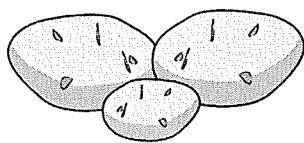
$$5 \overline{)250} \quad \begin{array}{r} 50 \\ \times 8 \\ \hline 400 \end{array}$$

400 km

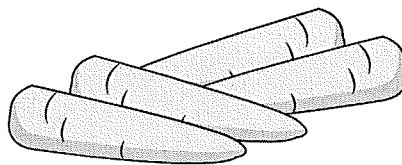
1 mark



16



potatoes
£1.50 per kg



carrots
£1.80 per kg

Jack buys $1\frac{1}{2}$ kg of potatoes and $\frac{1}{2}$ kg of carrots.

How much change does he get from £5?

Show your method

$\frac{1}{2}$	of	£	1.50	=			0.75		
2					2		1.50		
$\frac{1}{2}$	of	£	1.80	=			0.90		
2					2		1.80		
			1.50						
			0.75						
			2.25						
			0.90						
			3.15						

£ 1.85

4
5.00
- 3.15

1.85

2 marks



17

$$x + 2y = 20$$

x and y are whole numbers **less than 10**

What could x and y be?

$$8 + 12 = 20$$

$$12 \div 2 = 6$$

$$x = \boxed{8}$$

$$y = \boxed{6}$$

1 mark

18

Tick the fractions **less than** $\frac{5}{8}$

$$\frac{1}{2} \quad \boxed{\checkmark} \quad \frac{4}{8}$$

$$\frac{2}{8} \quad \boxed{\checkmark}$$

$$\frac{3}{4} \quad \boxed{} \quad \frac{6}{8}$$

$$\frac{7}{16} \quad \boxed{\checkmark} \quad \frac{5}{8} = \frac{10}{16}$$

$$\frac{24}{32} \quad \boxed{} \quad \frac{3}{4} = \frac{6}{8}$$

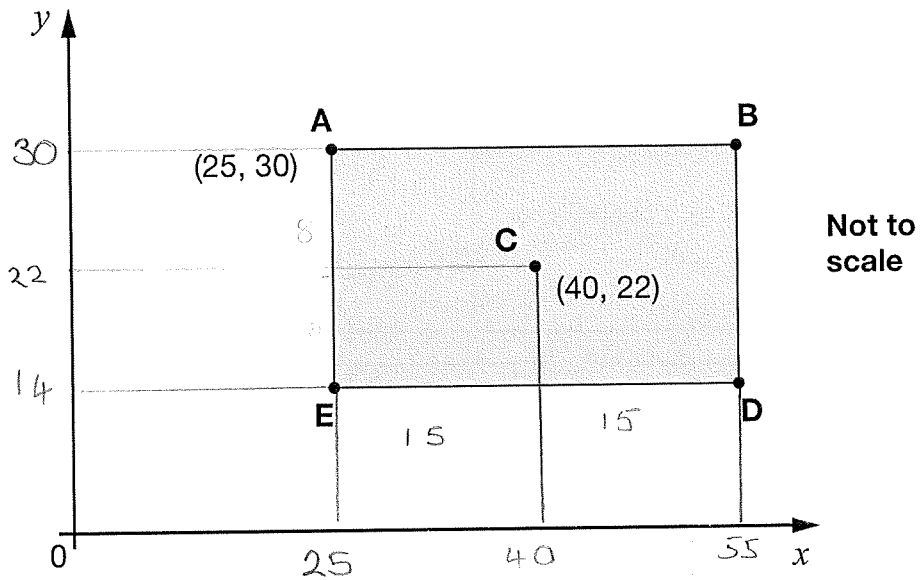
2 marks



21

ABDE is a rectangle on coordinate axes.

The sides of the rectangle are parallel to the axes.



Point **C** is the centre of the rectangle.

What are the coordinates of **B** and **D**?

B is

$(55, 30)$

1 mark

D is

$(55, 14)$

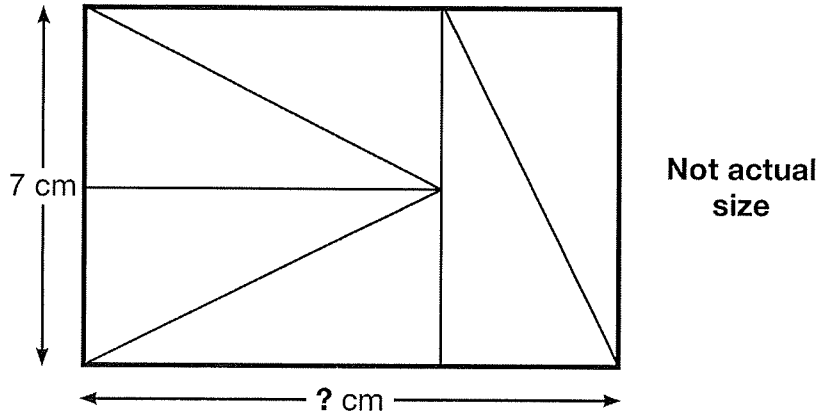
1 mark



H 0 0 0 8 0 A 0 1 9 2 4

22

Six identical right-angled triangles are arranged to make a rectangle.



Calculate the **length** of the rectangle.

$$7 \div 2 = 3.5$$

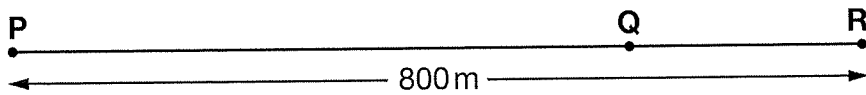
$$7 + 3.5 = 10.5$$

10.5 cm

1 mark



23



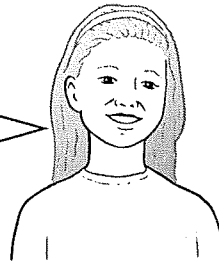
Not to scale

The distance from point **P** to point **R** is 800 metres.

The distance from point **P** to point **Q** is **4 times** the distance from point **Q** to point **R**.

Olivia says,

It is 600 metres from point **P** to point **Q**.



Explain why Olivia is **not** correct.

$$5 \overline{) 800} \begin{array}{r} 160 \\ \underline{800} \\ 0 \end{array}$$

$$Q \rightarrow R = 160 \text{ cm, so}$$

$$P \rightarrow Q = 160 \times 4 = \underline{640}$$

The distance from **p** to **q** is 640 m.

1 mark



H 0 0 0 8 0 A 0 2 1 2 4

[END OF TEST]

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