

10-for-10

Holiday Challenge: Mathematics '10 Challenges for 10 Days'

This booklet is designed to keep your brains 'ticking over' during the termly break. Just a few short activities will mean that you return ready to learn and raring to go!

Try to really impress your teacher by completing the challenges for each of the 10 days.

Circle any questions that you'd like some more help with when term starts again.

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Easter
Revision

Arithmetic Questions

$$102 + 4,000 =$$
A 10x10 grid of squares. A 4x2 rectangle is highlighted in the center, spanning from the 4th row to the 7th row and from the 5th column to the 7th column. The highlighted area is a solid black rectangle.

1 mark

$$5.6 \times 10 =$$

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

 $8 - 20 =$

A 10x10 grid with a 4x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 4 rows and 2 columns.

1 mark

 $456 \times 8 =$

A 10x10 grid with a 4x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 4 rows and 2 columns.

1 mark

$$360 \div 6 =$$
A 10x10 grid of squares. A 4x4 square is highlighted in the center, spanning from the 3rd row to the 6th row and from the 4th column to the 7th column. The highlighted square is white, while the other squares in the grid are light blue.

1 mark

6

Complete the missing numbers in the sequence.

8, 4, 0, , , -12

7

Circle the number which is closest in value to 5.

5.3 5.03 5.1 5.13 5.33

8

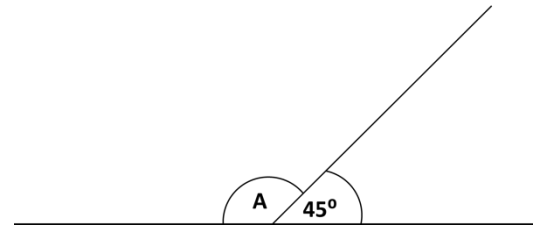
Write in the missing numbers to complete the grid.

x	<input type="text"/>	<input type="text"/>
8	32	24

9

1 mark

Calculate the missing angle 'A'.



<input type="text"/>	28	21
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1 mark

1 mark

1 mark

The price of a highlighter pen is 75p when bought individually.

A pack of 5 highlighter pens is £3.50. How much cheaper is **one pen** when bought as part of a pack? Show your working.

[illegible]

1 mark

10

Arithmetic Questions

1

3

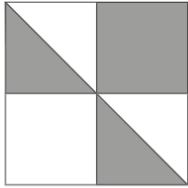
4

2

5

6

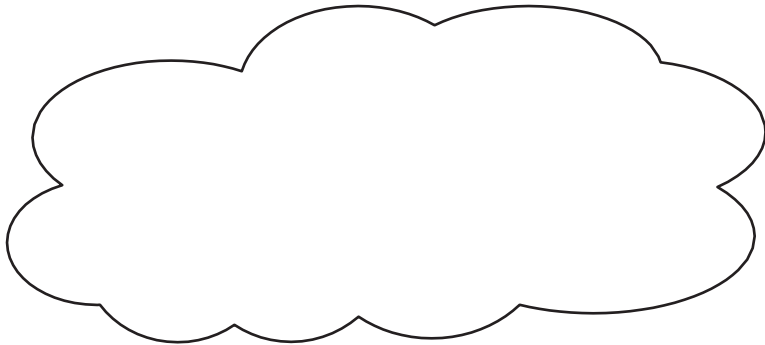
The diagram below is made of squares and triangles.
What fraction of the diagram is shaded?



 1 mark

7

Kim says, '20,001 cannot be a multiple of 4'. Explain why she is correct.



 1 mark

8

Jack ran the 100m in 15.4 seconds. Sima ran it two seconds faster.
What time did Sima record for her run?

9

Circle all the fractions which are equivalent to $\frac{3}{4}$.

$$\frac{6}{8}$$

$$\frac{5}{6}$$

$$\frac{12}{16}$$

$$\frac{18}{24}$$

$$\frac{7}{11}$$

 1 mark

10

Write these numbers in **ascending order**.

0.4

0.48

0.39

0.048

0.41

1 mark

1 mark

$$\frac{2}{8} + \frac{3}{16} =$$

A 10x10 grid with a 4x2 rectangle highlighted in the bottom right corner.

$$6 - 3.25 =$$

A 10x10 grid of squares. A 3x2 rectangle is highlighted in the center, spanning from the 4th to the 6th row and the 5th to the 7th column.

 = $456 \div 100$

A 10x10 grid with a 3x3 white square in the center. The grid is composed of 10 columns and 10 rows. The central 3x3 area, spanning from the 4th to the 6th column and the 4th to the 6th row, is white. The remaining 67 cells are black.

$$34.5 + 124.8 =$$

A 10x10 grid with a 3x3 square highlighted in the center. The highlighted square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column.

$$5^2 + 355 =$$

A 10x10 grid with a 4x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 4 rows and 2 columns.

1 mark

6

The value of the number in each circle is the same.
What is the value of a circle?

$$\bigcirc + \bigcirc + \bigcirc = 270$$

7

Complete the table below.

	Rounded to the nearest 10	Rounded to the nearest 100
85.6		
123.45		
399.98		

8

Write a number in the box to make the statement true.

$$(\square \div 7) - 8 = -1$$

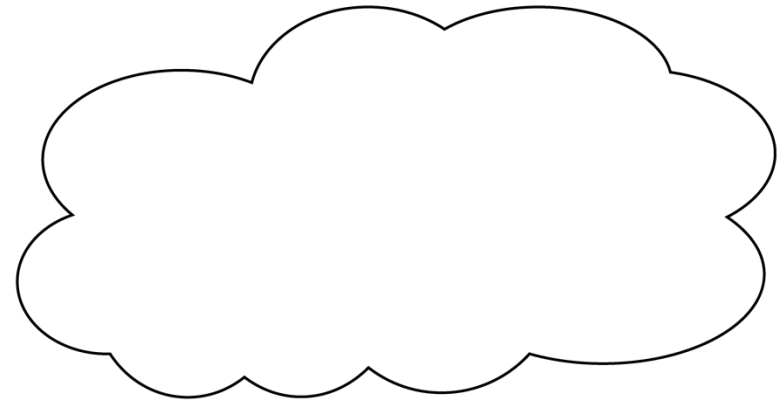
9

Mitul says that 0.4 is the same as $\frac{2}{5}$. Is he correct?

1 mark

Yes / No

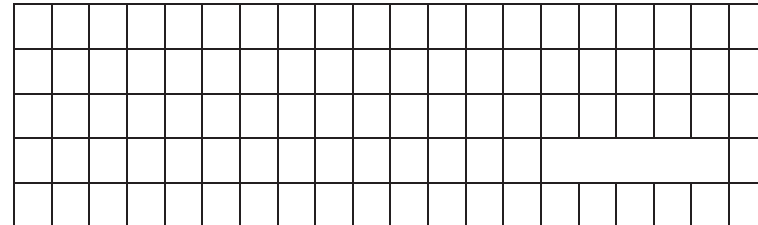
Explain how you know.



1 mark

10

1 mark



For their Y6 picnic, Class 6H have worked out that they need 24 loaves of bread to make sandwiches. If each loaf is 95p, what is the cost of the bread altogether? Show your working.

1 mark

$$568.4 - 25.3 =$$

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

4		3	
5		4	

[illegible]

1 mark

$$0.09 \times 1,000 =$$
[illegible]

1 mark

$$75 - 10 = 5^2 + \underline{\hspace{2cm}}$$
[illegible]

1 mark

$$-12 + 20 =$$

A 10x10 grid of squares. A 4x4 rectangle is highlighted in the center, spanning from the 3rd row to the 6th row and from the 3rd column to the 6th column. The highlighted area is a solid black rectangle.

1 mark

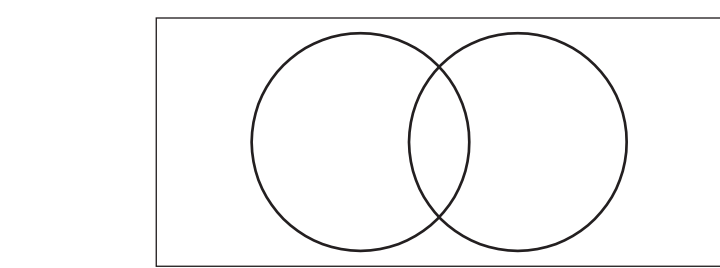
6

Write the following numbers in the correct place on this Venn diagram.

240 44 35 42 400

Multiples of 3

Multiples of 3 Multiples of 4



1 mark

7

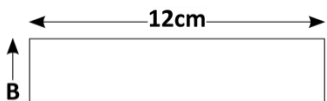
Mr. Smith bought a bag of 5 apples which weighed 585g in total. The bag weighed 5g. What is the weight of one apple? **Give your answer in kg.**

[illegible]

1 mark

8

The rectangle below has a perimeter of 50cm.
Find the missing distance labelled 'B'.



Day 4

Reasoning Questions

9

Label (or colour) the diagram below so that the ratio of red (R) to green (G) is 5:2. Two have been completed for you.

R	G					

1 mark

10

I think of a number. I halve it and add 2. I then multiply it by 3. My answer is 48. What is my number?

1 mark

1 mark

Day 5

Arithmetic Questions

1

$$84,540 \div 15 =$$

A 10x10 grid of squares. A 4x2 rectangle is highlighted in the center, spanning from the 4th column to the 6th column and from the 4th row to the 7th row. The highlighted area is a solid black rectangle.

1 mark

2

3	x	4	=
5			

[illegible]

1 mark

3

$$20\% \times 300 =$$

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

4

$$2,340 \div 1 =$$

A 10x10 grid with a 3x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 3 rows and 2 columns.

1 mark

5

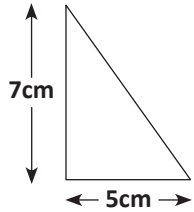
 = 3,500 + 600

A 10x10 grid with a 3x3 square highlighted in the center. The highlighted square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column.

1 mark

6

Calculate the area of this right-angled triangle.



7

Here are some digits.

2 4 5 6 7 9

Use all the digits once to create a square number, a prime number and a multiple of 7.

Square Number

--	--

Prime Number

--	--

Multiple of 7

--	--

8

Here is a number sentence.

$$8 \times \boxed{} < 65$$

Circle all the numbers which could fit into the number sentence to make it true.

1 mark

9

There are 600 pages in a book. Jake has read 40% of them.
How many more pages has he got left to read? Show your working.

6	15	9	7	5.5
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1 mark

1 mark

10

500 people attend a concert. There are 7 children to every 3 adults. How many children are at the concert? Show your working.

1 mark

1 mark

Day 6

Arithmetic Questions

1

$254 \times 9 =$

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

2

$$65 - 49 \div 7 =$$

A 10x10 grid of squares. A 3x3 square in the center is white, while all other squares are light gray. The white square is located in the middle of the grid, spanning from the 4th to the 6th column and the 4th to the 6th row (using 1-based indexing from the top-left).

1 mark

3

$$0.08 \times 100 =$$

A 10x10 grid with a 3x3 square highlighted in the center. The highlighted square is located in the middle of the grid, spanning from the 4th row to the 6th row and from the 4th column to the 6th column.

1 mark

4

$$\frac{6}{7} \div \frac{2}{3} =$$

A 10x10 grid with a 4x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 4 rows and 2 columns.

1 mark

5

$400 \times 60 =$

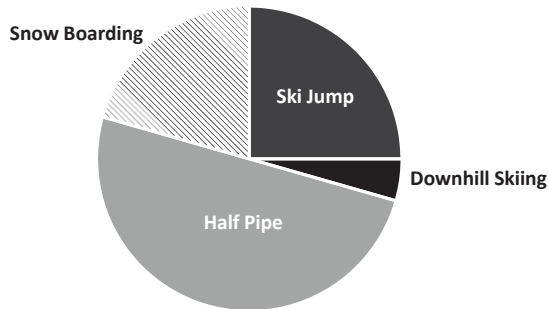
A 10x10 grid of squares. A 3x3 square in the center is white, while all other squares are light gray. The white square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column (using 1-based indexing from the top-left).

1 mark

6

The pie chart below shows the favourite events at the Winter Olympics. Use the information to estimate the percentage of people who liked snowboarding the most.

Favourite events at the Winter Olympics



1 mark

7

Circle the number that is 100 times greater than 5.6

0.56 56 5,600 560 5,006

1 mark

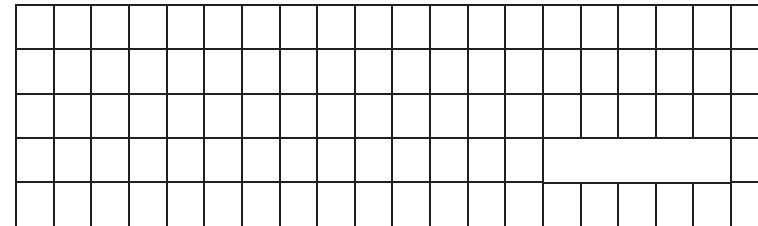
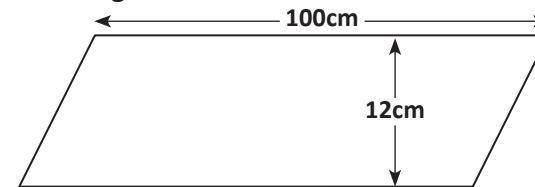
8

Estimate the number shown by the arrow.

50,000 _____ 100,000

9

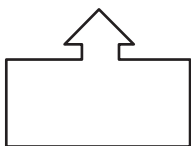
A floor is covered in tiles in the shape of identical parallelograms. Calculate the area of **one parallelogram** from the information below. Show your working.



1 mark

10

In the ski jumping event in the Winter Olympics, five athletes jumped the following distances. Calculate the **mean** of their distances.



147.2 m 145m 0.14km 137.8m 145m

_____ m
1 mark

_____ m
1 mark

= 9,865 - 100

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is at row 4, column 4 (using 1-indexing from top-left).

1 mark

$$3,456 \times 1,000 =$$

A 20x10 grid with a 5x3 rectangle highlighted in the center.

1 mark

$$123.9 + 0.34 =$$
[illegible]

1 mark

$$26 - 36 =$$
[illegible]

1 mark

$$250 + (9 \times 5) =$$
A 10x10 grid of squares. A 4x4 rectangle is highlighted in the center, spanning from the 3rd row to the 6th row and from the 3rd column to the 6th column. The highlighted area is a solid black rectangle.


1 mark


6

[illegible]

7

Write down the name of each shape in the space next to it.





8



Day 7

Reasoning Questions

9

118 18 89 540 81

10

this statement true.

1 mark

$$3t + y = 5$$

$$t = 1, y = 4$$

$$t = 1, y = 2$$

$$t = 2, y = 3$$

1 mark

$= 9^2 + 3^2$

A 10x10 grid with a 3x3 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column.

 $50 \times 25 =$

A 10x10 grid with a 3x2 rectangle highlighted in the bottom right corner.

$$3,456 + 999 =$$
A 10x10 grid of squares. A rectangle is highlighted in the center, spanning 4 rows and 2 columns. The rectangle is white with a black border. It is positioned such that it covers the 4th, 5th, 6th, and 7th rows and the 5th and 6th columns of the grid. $15 \times 4.2 =$

A 10x10 grid with a 3x3 square highlighted in the center. The highlighted square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column.

 $4,655 \div 19 =$ A 10x10 grid of squares. A 3x3 square in the center is white, while all other squares are light gray. The white square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column (using 1-based indexing from the top-left).

1 mark

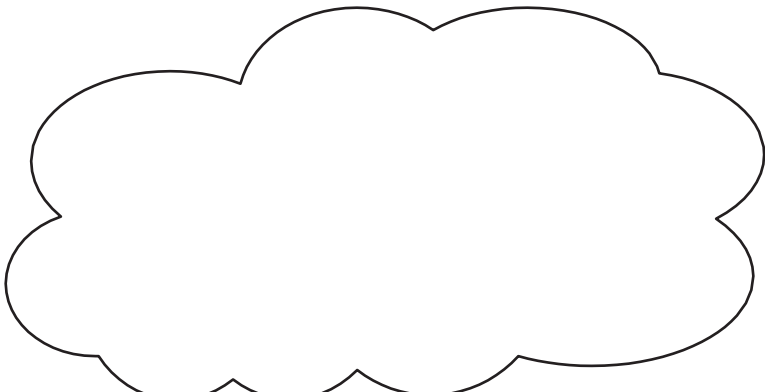
6

[illegible]

7

9 16 25 36 _____

Yes / No	Explain how you know.
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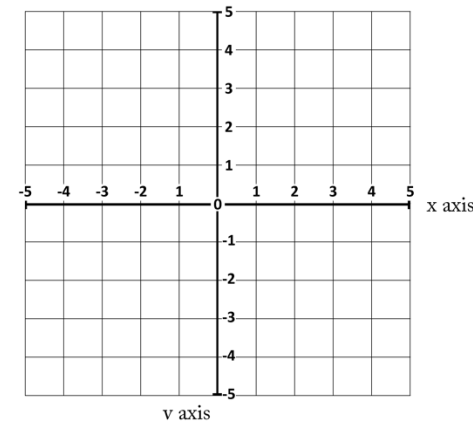
Reasoning Questions

8

Write down the coordinates of your third vertex.

1 mark

1 mark



1 mark

9

240 30 120 16 48

1 mark

10

1 3

1 mark

Day 9

Arithmetic Questions

1

$$2\frac{1}{6} + \frac{5}{6} =$$

A 10x10 grid of squares. A 4x2 rectangle is highlighted in the center, spanning from the 4th row to the 7th row and from the 6th column to the 8th column. The highlighted area is a solid black rectangle.

1 mark

2

$$25 + (9 \times 12) =$$

A 10x10 grid of squares. A 3x3 square in the center is white, while all other squares are light gray. The white square is located in the middle of the grid, spanning from the 4th to the 6th row and the 4th to the 6th column (assuming the top-left square is at row 1, column 1).

1 mark

3

$$2,345 \times 7 =$$

A 10x10 grid with a 3x2 rectangle highlighted in the bottom right corner.

1 mark

4

$$25\% \text{ of } 500 =$$

A 10x10 grid of squares. A 3x3 square in the center is white, while all other squares are light gray. The white square is located in the middle of the grid, spanning from the 4th to the 6th column and the 4th to the 6th row (assuming the top-left square is at row 1, column 1).

1 mark

5

$$4,568 \div 4 =$$

A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

6

Complete the bus timetable below.

Route	Departure Time	Arrival Time	Duration of Journey
Dibden - Sutton	09:45		55 Minutes
Tulling - Fripton	11:15	13:40	
Sibsey - Monkton		15:45	1hr 15 Minutes

7

A shop has 270 pairs of jeans displayed on shelves. Each shelf holds 18 pairs of jeans. How many shelves are needed? Show your working.

[illegible]

8

Circle all the **common multiples** of 5 and 6.

30 55 120 90 66



Day 9 Reasoning Questions

1 mark

9

$\frac{2}{6}$ of the 360 children in a school come by car. $\frac{2}{6}$ cycle to school.

How many of the children travel to school in other ways?
Show your working.

[illegible]

1 mark

1 mark

10

Insert a pair of brackets to make this statement true.

$$15 + 9 \times 8 = 87$$

1 mark

1 mark

$$\underline{\hspace{2cm}} - 100 = 5,346$$
A 10x10 grid of squares. A 3x3 square is highlighted in the center, with a black border. The highlighted square is located at the intersection of the 4th and 5th columns and the 4th and 5th rows, assuming the top-left square is (1,1).

1 mark

$$\frac{2}{7} \times \frac{3}{9} = \frac{\quad}{\quad}$$
 Simplify your answer.A large rectangular grid consisting of 10 columns and 10 rows of squares, intended for drawing a picture.

1 mark

$$2.098 + 12.6 =$$

A 10x10 grid with a 3x2 rectangle highlighted in the center.

1 mark

$$0.04 \times \underline{\hspace{2cm}} = 40$$

A 10x10 grid with a 4x4 square highlighted in the bottom right corner.

1 mark

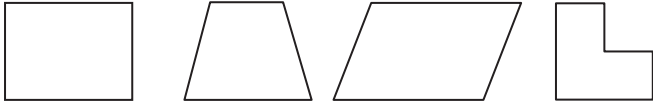
$$\begin{array}{r} 34 \\ \times 23 \\ \hline \end{array}$$

A 10x10 grid with a 4x2 rectangle highlighted in the center. The highlighted rectangle is located in the middle of the grid, spanning 4 rows and 2 columns.

1 mark

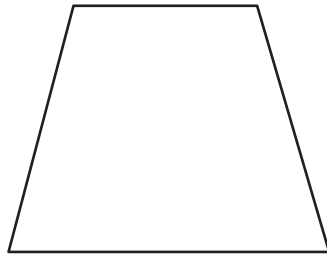
6

Tick inside the shapes which have **exactly one line of symmetry**.



7

Draw **1 perpendicular line** inside this shape to create a trapezium and a triangle.



8

Insert one of these symbols into each box to make the statements true. $<$ $>$ $=$

$$\frac{5}{6} \quad \square \quad \frac{10}{12}$$

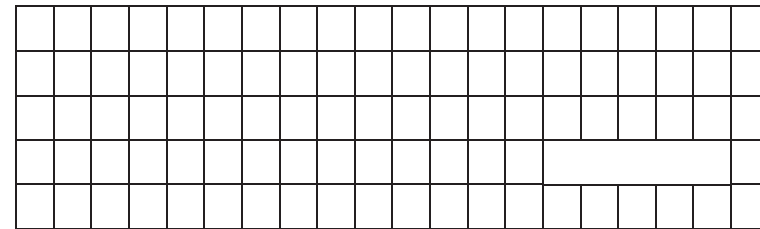
$$75\% \quad \square \quad 0.6$$

$$5\% \quad \square \quad 0.05$$

9

1 mark

Amina posts four large letters. The postage costs the same for each letter. She pays with a £20 note. Her change is £16.60. What is the cost of posting one letter? Show your working.



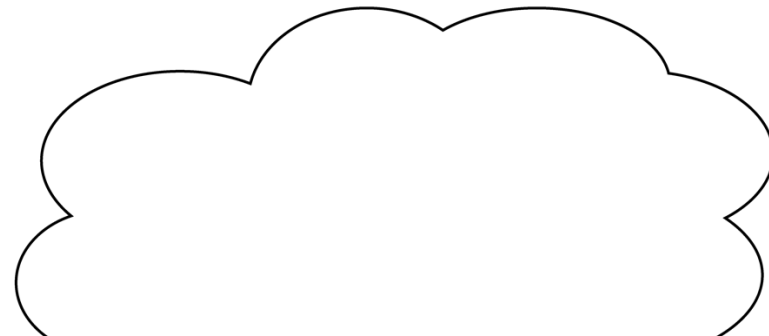
1 mark

1 mark

10

James says 0.20 is equivalent to $\frac{1}{20}$.

Is he correct? **Yes / No** Explain how you know.



1 mark