

Summer Assessment

# Year 8

## Mathematics

Higher: No calculator allowed

Time allowed: 45 minutes

First name						
Middle name						
Last name						
Date of birth	Day		Month		Year	
Teacher						

This assessment has been designed by White Rose Maths.

For more information, please visit [www.whiterosemaths.com](http://www.whiterosemaths.com)



1

There are 15 boys and 60 girls in a choir.

Write the ratio of the number of boys to the number of girls in the choir in the form  $n : 1$

---

1 mark

2

In a sale, the price of a book is reduced by 25%.

The price of the book in the sale is £12

Work out the original price of the book.

£

2 marks

3

Dora asks her friends how much time they spent reading last week. The results are shown in the table.

Time spent reading, $h$ (hours)	$0 \leq h < 2$	$2 \leq h < 4$	$4 \leq h < 10$
Number of people	4	5	11

Dora says, "Most people spend at least 4 hours a week reading."

Explain why Dora's conclusion may be incorrect.

1 mark

Explain why you cannot find the range of the time spent reading by Dora's friends.

1 mark

Find an estimate of the mean time spent reading by Dora's friends.

hours

3 marks

**4**

On a map of a town, 3 cm represents 150 m.

Two points in the town are 1 km apart.

How far apart are the two points on the map?

2 marks

**5**

Solve the equation.

$$3x + 5 = 4 + 5x$$

3 marks

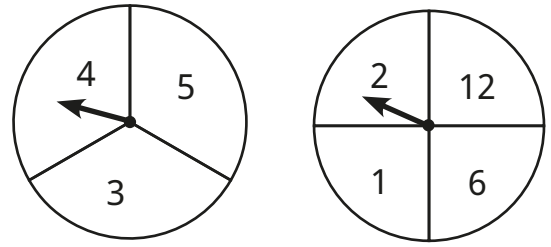
Find the value of  $a$ .

$$(x + 3)(x + 7) \equiv x^2 + ax + 21$$

1 mark

**6**

Kim has two fair spinners.



She spins both spinners and finds the product of the two numbers.

Explain how you know there will be 12 possible outcomes.

1 mark

Kim records the outcomes in a table.

	3	4	5
1	3	4	5
2	6	8	10
6	18	24	30
12	36	48	60

What is the probability that the outcome is an odd number?

1 mark

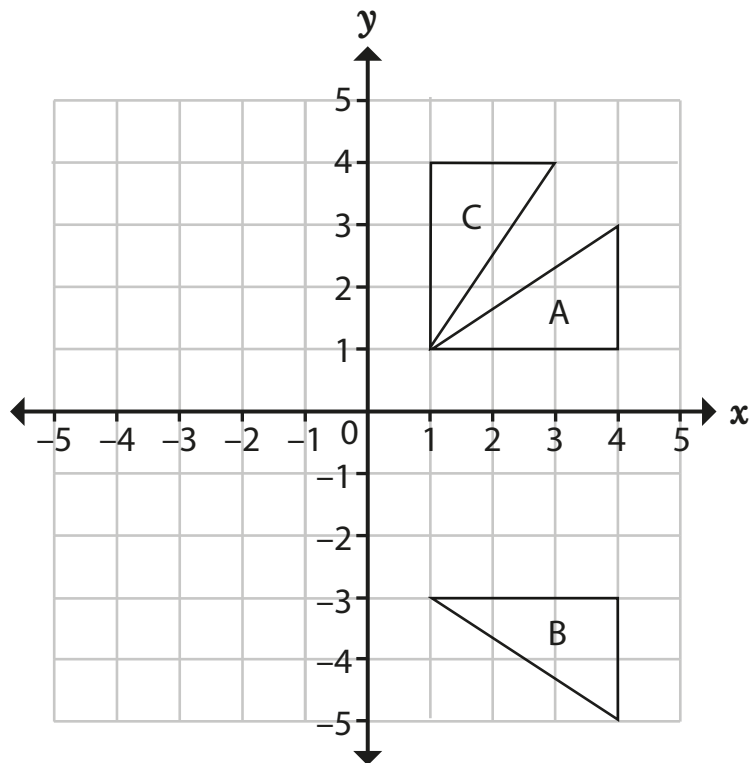
What is the probability that the outcome is a factor of 100?

1 mark

7

Draw a kite with diagonals of length 6 cm and 10 cm.

2 marks



Describe the reflection that maps triangle A onto triangle B.

1 mark

Describe the reflection that maps triangle A onto triangle C.

1 mark

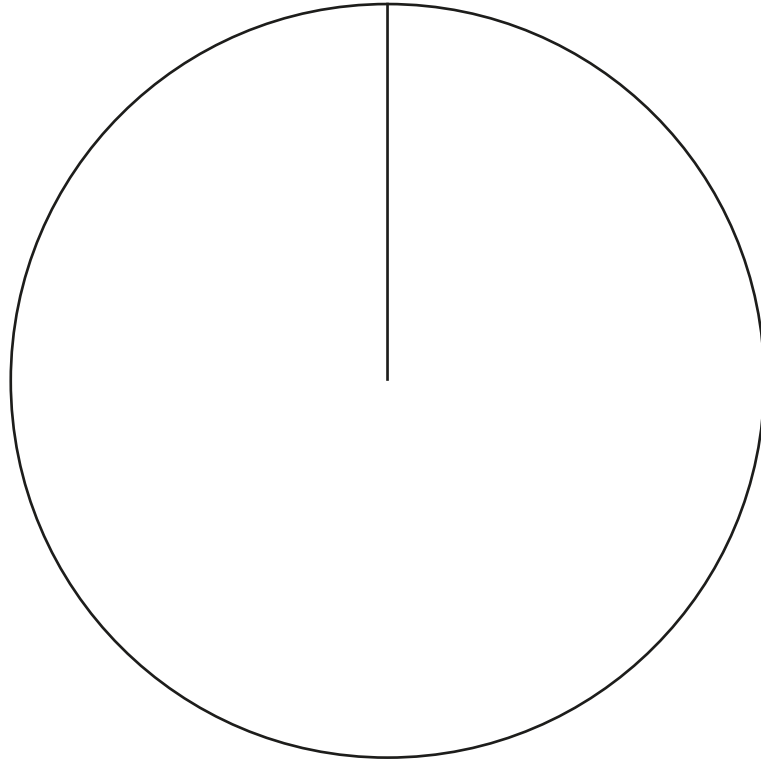
9

A group of students were asked to choose between three new designs of school uniform, A, B and C.

One third chose design A.

Twice as many chose design B as design C.

Draw a pie chart to represent this information.



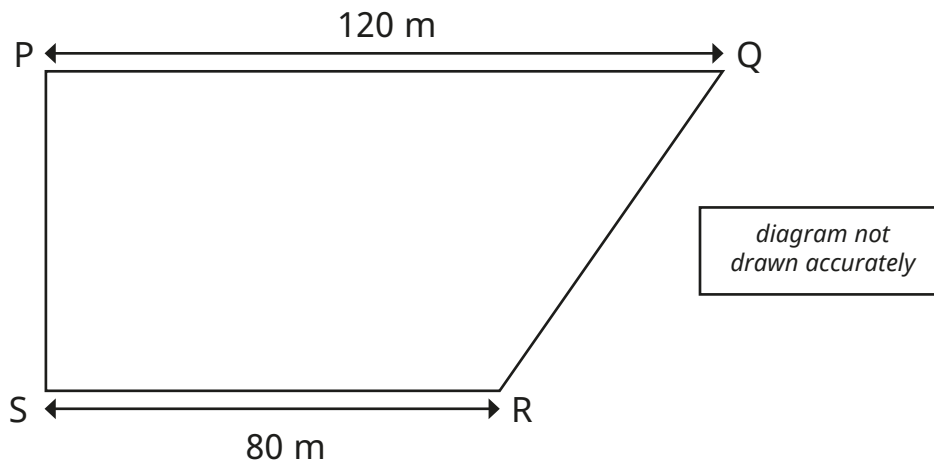
3 marks



10

The diagram shows a plot of land, PQRS.

PQ is parallel to SR and PS is perpendicular to SR.



The area of the plot of land is  $3000 \text{ m}^2$

A fence is to be constructed from P to S.

Calculate the length of the fence.

3 marks

11

The exterior angles of a regular polygon are  $40^\circ$ .

How many sides does the polygon have?

1 mark

12

Here are the first three terms of a linear sequence.

8, 19, 30

Find an expression for the  $n$ th term of the sequence.

---

2 marks

13

Which is the correct simplification of  $(a^3)^3$ ?

Circle your answer.

$a^{33}$     $a^9$     $a^6$     $a^{27}$

1 mark

**14**

Work out the values of the expressions.

Give your answers as fractions.

$3^{-2}$

---

1 mark

$\left(\frac{1}{4}\right)^{\frac{1}{2}}$

---

1 mark**15**Mo says, "1 m<sup>2</sup> = 100 cm<sup>2</sup>"

Explain why Mo is wrong.

---

1 mark

Complete the statement.

$1 \text{ cm}^3 = \boxed{\phantom{000}} \text{ mm}^3$

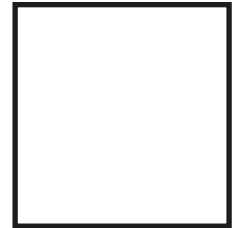
---

1 mark

**16**

Work out the division.

$$6\frac{2}{5} \div \frac{1}{3}$$



2 marks

**17**Complete the table of values for  $y = \frac{3}{2x}$ 

$x$	1	2	3	4
$y$	1.5			

2 marks

Will the graph of  $y = \frac{3}{2x}$  be a straight line?

Circle your answer.

**Yes****No**

Explain how you know.

1 mark

**END OF TEST**