

Year 9 Maths Practice Paper 3

This paper covers: Percentages, Fractions, Straight line graphs, Algebraic manipulation, Non-linear graphs, Sets and probability, Area and volume, Ratio and proportion, Pythagoras' theorem, Transformations.

TIME ALLOWED
40 minutes
TOTAL MARKS
33
QUESTIONS
24

Name _____

Class _____ Date _____

INSTRUCTIONS

- Use black ink or a black ball-point pen.
- Answer every question in the space given.
- You may use a calculator.
- Show your working. Some marks are given for a correct method, even when the answer is wrong.

INFORMATION

- The marks for each question are shown in brackets, for example [1 mark].
- The questions start easier and get harder as you go.
- Diagrams are not drawn accurately unless the question says so.
- Check your answers if you have time at the end.

FOR THE MARKER

Score _____ **out of 33**

Percentage _____ %

01 Questions

Answer every question. Show your working.

- 1** Increase 160 by 45%.

[1 mark]

ANSWER

- 2** Find the value of $6(x + 6)$ when $x = 2$.

[1 mark]

ANSWER

- 3** Multiply $\frac{1}{4}$ by $\frac{3}{5}$. Write your answer as a fraction.

[1 mark]

ANSWER

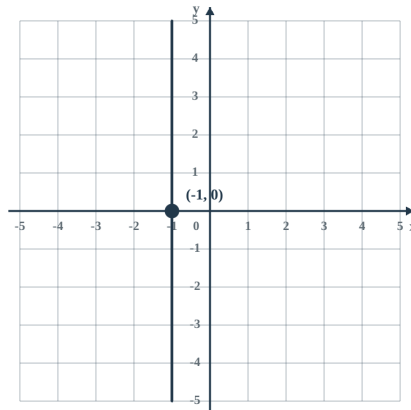
4 The line drawn passes through $(-1, 0)$ and goes straight up. Which equation is it? [1 mark]

Circle your answer.

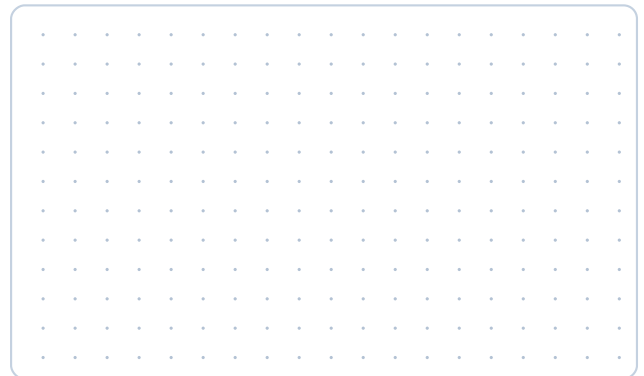
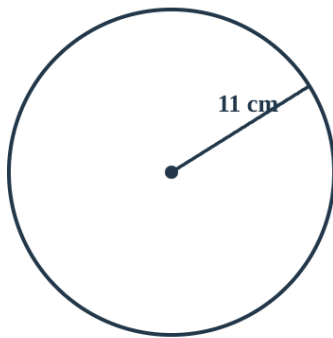
☐ $x = -1$

☐ $y = -1$

☐ $y = x$



5 Work out the distance round this circle. Give your answer to one decimal place. [1 mark]



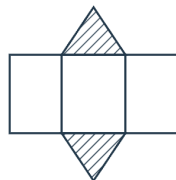
ANSWER

6 Work out the surface area of this triangular prism, which is 4 centimetres long and has [1 mark]

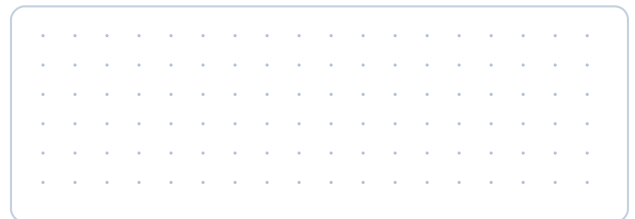
right-angled triangular ends with sides of 6, 8 and 10 centimetres. Give your answer in square centimetres.



The solid

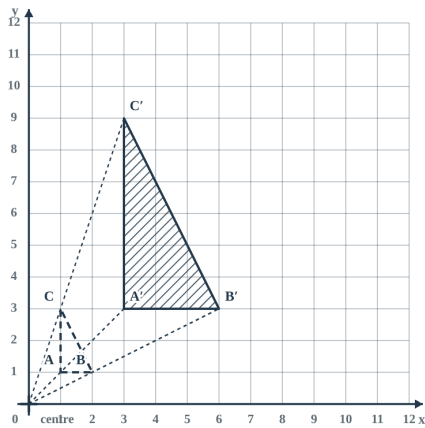


Its net



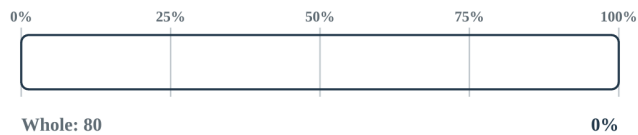
ANSWER

- 7 The rays from the centre pass through matching corners. The image is an enlargement of the shape. What is the scale factor? [1 mark]



ANSWER

- 8 The bar stands for 80. Slide the fill to show 70% of it. Write the value the slider should show. [1 mark]



- 9 How many flat shapes are there in the net of a cuboid? [2 marks]

ANSWER

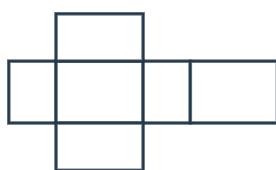
- 10 A right-angled triangle has a base of 8 centimetres and a height of 6 centimetres. What is its area in square centimetres? [1 mark]

ANSWER

- 11 A shape is enlarged by scale factor 2 with centre $(0, 0)$. Where does the vertex $(2, 3)$ go? Give x , then y . Write both answers. [1 mark]

ANSWER

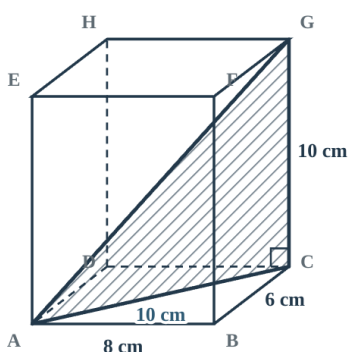
- 12 Pick the two faces of the net that are 3 by 4. The cuboid is 7 by 3 by 4. Write the letters of the faces. [1 mark]



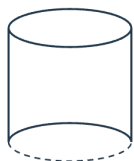
Its net

- 13 The shaded triangle stands on the base diagonal. Which side of it is the hypotenuse? Circle your answer. [1 mark]

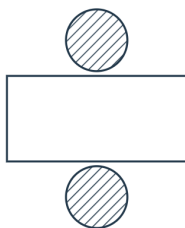
- ☐ CG, the vertical edge
 ☐ AC, the base diagonal
 ☐ AG, the diagonal through the cuboid



- 14 Only part of the surface is wanted this time. This cylinder has a radius of 9 centimetres and a height of 12 centimetres. What is the area of the curved part only, to one decimal place? [2 marks]



The solid



Its net

ANSWER

- 15 A 4-sided spinner was spun 20 times. What is the relative frequency of a 1? Give a fraction in its simplest form. Write your answer as a fraction. [1 mark]

Score	Frequency
1	4
2	6
3	5
4	5

ANSWER

- 16 The whole bar is worth 96. What are the 5 shaded shares worth altogether? [2 marks]



whole: 96

ANSWER

- 17 Isla says $\frac{1}{6} + \frac{3}{5} = \frac{4}{11}$. What is wrong? Circle your answer. [1 mark]

- ☐ Only the tops should be added: $\frac{4}{6}$
- ☐ The parts are different sizes; with a common bottom number it is $\frac{23}{30}$
- ☐ Nothing, add tops and add bottoms

- 18 Two friends share money in the ratio 1 : 2, and one gets £7 more than the other. Sam divides £7 by 3 to find one part. What is wrong? Circle your answer. [1 mark]
- ☐ The difference is 1 part, so divide by 1 ☐ The difference should be multiplied by 3
- ☐ Nothing, that gives one part

- 19 Expand and simplify $3x(x + 1) + 3x$. [3 marks]

ANSWER

- 20 Which is the bigger share: 12 out of 20, or 33 out of 60? Circle your answer. [1 mark]
- ☐ 33 out of 60 ☐ 12 out of 20 ☐ They are equal

- 21 Factorise fully $8x^2y + 4xy$. [3 marks]

ANSWER

- 22 30% of one number is 12. 20% of another number is 100. Which number is bigger? Circle your answer. [1 mark]
- ☐ The first number ☐ The second number ☐ They are equal

- 23 A letter is picked at random from the word PROBABILITY. What is the probability it is the letter Y? Give a fraction in its simplest form. Write your answer as a fraction. [2 marks]

ANSWER

24

One cylinder has a volume of 1131.0 cubic centimetres. A second cylinder has every length twice as big. What is its volume, to one decimal place?

[2 marks]

ANSWER

Practice Paper 3

FOR THE MARKER

The marks for every question, the answers to accept and what to award for part of an answer. 33 marks in total.

1	232	[1 mark]
2	48	[1 mark]
3	$\frac{3}{20}$	[1 mark]
4	$x = -1$ <i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	[1 mark]
5	69.1 cm	[1 mark]
6	144 cm ²	[1 mark]
7	3	[1 mark]
8	70% <i>Award the mark when the drawing or marking matches the answer shown.</i>	[1 mark]
9	6 <i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>	[2 marks]
10	24 square centimetres	[1 mark]
11	4 and 6	[1 mark]
12	A and C <i>Award the mark when the drawing or marking matches the answer shown.</i>	[1 mark]
13	AG, the diagonal through the cuboid <i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	[1 mark]
14	678.6 cm ² <i>Award 2 marks for the correct answer. Award 1 mark for a correct method, or for the correct value before rounding or rounded incorrectly.</i>	[2 marks]
15	$\frac{1}{5}$	[1 mark]

16	40	[2 marks]
	<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>	
17	The parts are different sizes; with a common bottom number it is $\frac{23}{30}$	[1 mark]
	<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	
18	The difference is 1 part, so divide by 1	[1 mark]
	<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	
19	$3x^2 + 6x$	[3 marks]
	<i>Award 3 marks for the correct answer. Award 2 marks for a correct expansion that is not fully simplified. Award 1 mark for at least two correct terms.</i>	
20	12 out of 20	[1 mark]
	<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	
21	$4xy(2x + 1)$	[3 marks]
	<i>Award 3 marks for the correct answer. Award 2 marks for a correct factorisation that is not complete. Award 1 mark for a correct first step, such as a common factor taken out.</i>	
22	The second number	[1 mark]
	<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	
23	$\frac{1}{11}$	[2 marks]
	<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>	
24	9047.8 cm^3	[2 marks]
	<i>Award 2 marks for the correct answer. Award 1 mark for a correct method, or for the correct value before rounding or rounded incorrectly.</i>	

Total

33 marks