

Year 9 Maths

Practice Paper 2

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
32
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

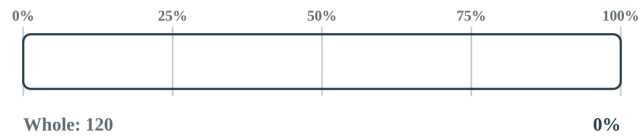
Score _____ **out of 32**

Percentage _____ %

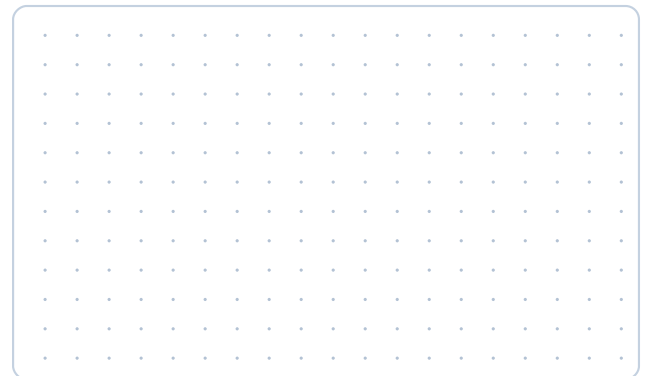
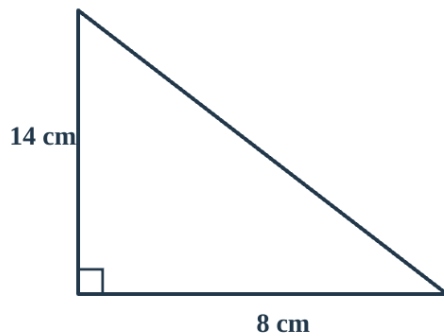
01 Questions

Answer every question. Show your working.

- 1** An amount of 120 is increased by 5%. Slide the fill to show the 5% that is added on. [1 mark]
Write the value the slider should show.

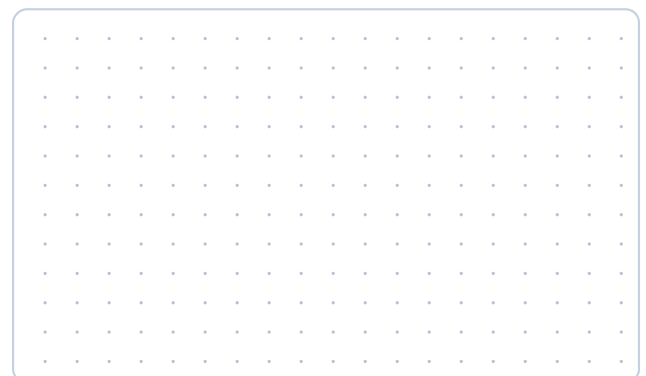
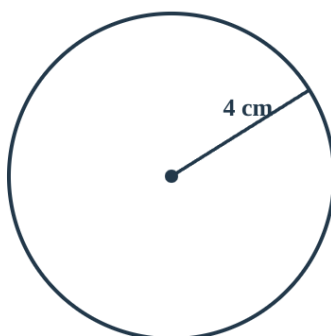


- 2** What is the area of this right-angled triangle in square centimetres? [1 mark]



ANSWER

- 3** The radius of this circle is marked. How long is its diameter, in centimetres? [1 mark]



ANSWER

4 Work out $3x + 2$ when $x = 7$, one step at a time.

[1 mark]

$x = 7$

$3x + 2$

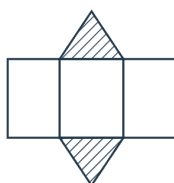
ANSWER

5 This triangular prism is 13 centimetres long and has right-angled triangular ends with sides of 9, 12 and 15 centimetres. What is the area of one triangular end, in square centimetres?

[1 mark]



The solid



Its net

ANSWER

6 The bar shows $\frac{1}{5}$. Cut every part into 4 smaller parts, ready to take $\frac{1}{4}$ of it. Draw lines to cut each part of the bar.

[1 mark]



7 A coin was flipped and the results tallied. How many flips were there altogether?

[1 mark]

Result	Tally	Frequency
Heads		13
Tails		11

ANSWER

- 8** Find $\frac{5}{7} - \frac{1}{3}$. Give your answer in its simplest form. Write your answer as a fraction. [1 mark]

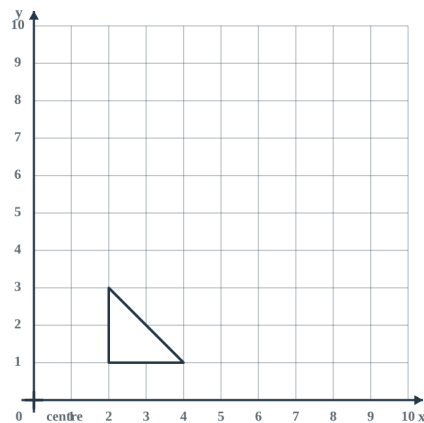
ANSWER

- 9** A bag holds 32 counters. The probability of picking a red one is $\frac{3}{8}$. How many red counters are in the bag? [2 marks]

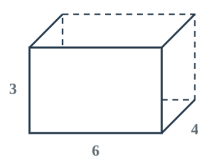
ANSWER

- 10 Which of these arrangements of six squares folds into a cube? Circle the one you choose. [1 mark]

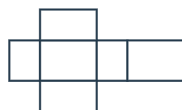
- 11** Enlarge the triangle by scale factor 2, centre (0, 0). Mark the three vertices of the image. Plot the points on the grid. [1 mark]



- 12 What is the area of the front face of the 6 by 4 by 3 cuboid, in square units? [1 mark]



The solid



Its net

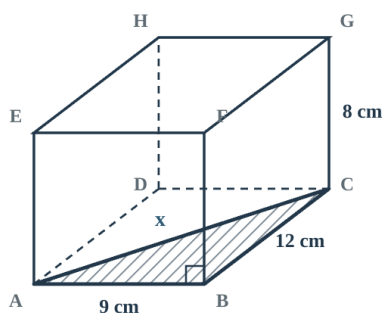
ANSWER

- 13 Squash and water are mixed in the ratio 4 : 3. Cut the bar with squash on the left. Draw the line that cuts the bar. [1 mark]

4 : 3



- 14 Work out the length of the base diagonal AC. [2 marks]



ANSWER

- 15 Match each solid to the parts that make up its surface. Draw a line from each item on the left to its match on the right. [1 mark]

square-based pyramid

•

• the square base added to the four triangular faces

cone

•

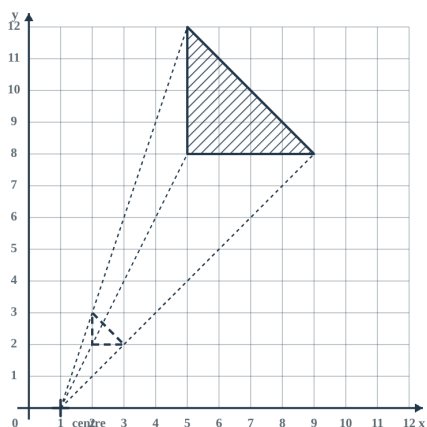
• the six rectangular faces added, in three matching pairs

cuboid

•

• $\pi \times \text{radius} \times \text{slant height}$ for the curved part, plus the area of the circular base

- 16 The rays show where the enlargement was made from. Give the coordinates of the centre. Write both answers. [1 mark]



ANSWER

- 17 The grid multiplies $(x + 5)(x - 3)$. Which is the expanded and simplified result? Circle your answer. [1 mark]

☐ $x^2 + 2x + 15$

☐ $x^2 - 8x - 15$

☐ $x^2 + 2x - 15$

$$(x + 5)(x - 3)$$

	x	-3
x	x^2	$-3x$
$+5$	$5x$	-15

- 18 Expand and simplify $2(x + 1) - 4(x + 3)$. [2 marks]

ANSWER

- 19** A club had 60 members last year and has 48 this year. By what percentage has its membership fallen? [2 marks]

ANSWER

- 20** Three of these are the same expression. Which one is different? Circle your answer. [1 mark]
- ☐ $4(3x + 5)$ ☐ $12x + 20$ ☐ $4(3x + 20)$

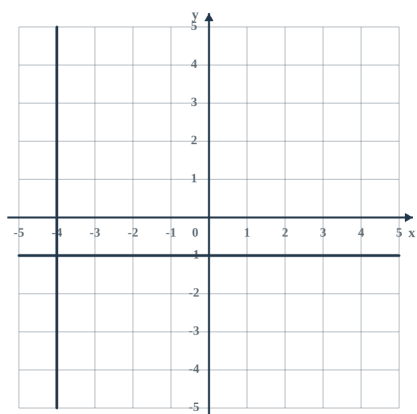
- 21** Nia has read 50% of a book, which is 180 pages. How many pages does the book have? [3 marks]

ANSWER

- 22** A tent is a triangular prism. Its end is a triangle 4 m wide and 6 m high, and it is 9 m long. What is the space inside, in cubic metres? [2 marks]

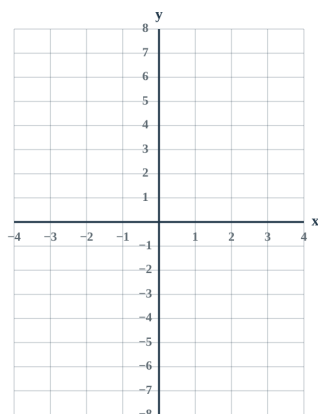
ANSWER

- 23** Two lines are drawn. Give the coordinates of the point where they cross. Write both answers. [2 marks]



ANSWER

- 24** Make a line with gradient -2 that passes through $(0, 2)$. Draw the line on the axes. [1 mark]



Practice Paper 2

FOR THE MARKER

The marks for every question, the answers to accept and what to award for part of an answer. 32 marks in total.

1	5%	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>	
2	56 square centimetres	[1 mark]
3	8 cm	[1 mark]
4	23	[1 mark]
5	54 cm ²	[1 mark]
6	each part cut into 4, making 20 parts	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>	
7	24	[1 mark]
8	$\frac{8}{21}$	[1 mark]
9	12	[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>	
10	the first one	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>	
11	(4, 2), (8, 2), (4, 6)	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>	
12	18	[1 mark]
13	4 of the 7 shares	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>	
14	15 cm	[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>	

15	square-based pyramid → the square base added to the four triangular faces; cone → $\pi \times \text{radius} \times \text{slant height}$ for the curved part, plus the base circle; cuboid → the six rectangular faces added, in three matching pairs <i>Award the mark only when every part is correct.</i>	[1 mark]
16	1 and 0	[1 mark]
17	$x^2 + 2x - 15$ <i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	[1 mark]
18	$-2x - 10$ <i>Award 2 marks for the correct answer. Award 1 mark for a correct expansion that is not fully simplified.</i>	[2 marks]
19	20 % <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]
20	$4(3x + 20)$ <i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	[1 mark]
21	360 pages <i>Award 3 marks for the correct answer. Award 2 marks for a complete method with no more than one arithmetic error. Award 1 mark for a correct first step.</i>	[3 marks]
22	108 cubic metres <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]
23	-4 and -1 <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]
24	gradient -2, intercept 2 <i>Award the mark when the drawing or marking matches the answer shown.</i>	[1 mark]

Total

32 marks