

Year 10 Higher Maths Practice Paper 2

This paper covers: Percentages, Work with fractions, Non-calculator methods, Algebraic manipulation, Quadratic expressions and equations, Straight line graphs, Graphs and diagrams, Probability, Ratio and scale, Perimeter, area and volume, Pythagoras and trigonometry.

TIME ALLOWED

50 minutes

TOTAL MARKS

42

QUESTIONS

26

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 42

Percentage _____ %

01 Questions

Answer every question. Show your working.

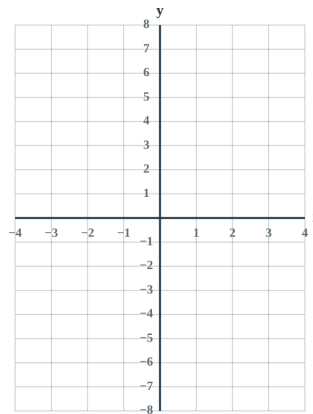
- 1** Find 23% of 840.

[1 mark]

ANSWER

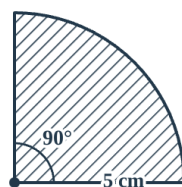
- 2** Complete the table for $y = 3x + 3$ in your head, then plot the points for $x = -2, -1, 0$. Plot the points on the grid.

[1 mark]



- 3** How long is the curved edge of this slice? Give your answer to one decimal place.

[1 mark]



ANSWER

8 $\frac{4}{9} \times ? = \frac{4}{54}$. What fraction is missing? Write your answer as a fraction. [1 mark]

ANSWER

9 In a test, Ava scores 100 out of 250. What is that as a percentage? [1 mark]

ANSWER

10 A box holds 120 seats. $\frac{1}{4}$ of them are taken out, then $\frac{1}{6}$ of the ones still in the box are taken out. How many seats are taken out the second time? [2 marks]

ANSWER

11 9 boxes hold 39 shells each, and 44 of the shells are used. How many are left? [2 marks]

ANSWER

12 Match each shape to its area in square centimetres. Draw a line from each item on the left to its match on the right. [1 mark]

13 Which of these circles has an area of about 201 square centimetres? Circle the one you choose. [1 mark]

- 14 Apples and pears are mixed in the ratio 5 : 2. Cut the bar with apples on the left. Draw the line that cuts the bar. [1 mark]

5 : 2

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- 15** A rectangle has a perimeter of 42 centimetres and is 11 centimetres long. How wide is it in centimetres? [2 marks]

ANSWER

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- 16 Is $\frac{2}{3} + \frac{3}{5}$ more or less than $\frac{1}{2}$? Circle your answer. [1 mark]
- ☐ Exactly a half ☐ More than a half ☐ Less than a half

- 17 Mixture A uses squash and water in the ratio 5 : 18. Mixture B uses 15 : 54. Which is stronger? Circle your answer. [1 mark]
- ☐ Mixture A ☐ They are the same strength ☐ Mixture B

- 18 A spinner lands on red, blue or green. Red and blue are equally likely and the probability of green is 0.4. What is the probability of red? Give a decimal. [2 marks]

ANSWER

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- 19 Which is more: £80 increased by 25%, or £100 decreased by 10%? Circle your answer. [1 mark]
- ☐ £80 increased by 25% ☐ £100 decreased by 10% ☐ They are the same

- 20** A lock code has 2 digits, each from 1 to 5, and digits may repeat. How many different codes are there? [3 marks]

ANSWER

- 21** A box holds 15 stickers and there are 34 boxes, making 510 in all. How many stickers would 340 boxes hold? [3 marks]

ANSWER

- 22** A factory tests 400 bulbs and finds 7 faulty. How many faulty bulbs would it expect in a batch of 2000? [3 marks]

ANSWER

- 23** One of these expressions cannot be factorised. Which one? Circle your answer. [1 mark]
- ☐ $x^2 + 10x + 25$ ☐ $x^2 - 25$ ☐ $x^2 + 25$

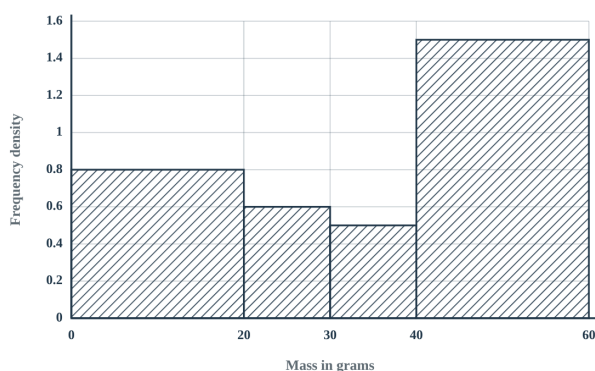
- 24** Dev has 5 shirts and 4 pairs of trousers. How many different outfits of one shirt and one pair of trousers are there? [3 marks]

ANSWER

- 25** A prism has a volume of 480 cubic centimetres and a cross-section of area 96 square centimetres. How long is it, in centimetres? [2 marks]

ANSWER

- 26** What fraction of the items are in the 0 to 20 class? Give it in its simplest form. Write your answer as a fraction. [2 marks]



ANSWER

Practice Paper 2

FOR THE MARKER

The marks for every question, the answers to accept and what to award for part of an answer. 42 marks in total.

1	193.2	[1 mark]	2	$(-2, -3), (-1, 0), (0, 3)$	[1 mark]
				<i>Award the mark when the drawing or marking matches the answer shown.</i>	
3	7.9 cm	[1 mark]	4	180°	[1 mark]
				<i>Award the mark when the drawing or marking matches the answer shown.</i>	
5	6	[2 marks]	6	7	[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>			<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>	
7	$6x - y$	[1 mark]	8	$\frac{1}{6}$	[1 mark]
9	40 %	[1 mark]	10	15	[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>	
11	307	[2 marks]	12	clock 1 $\rightarrow$ 40; clock 2 $\rightarrow$ 28; clock 3 $\rightarrow$ 56	[1 mark]
	<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>			<i>Award the mark only when every part is correct.</i>	
13	the third one	[1 mark]	14	5 of the 7 shares	[1 mark]
	<i>Award the mark when the drawing or marking matches the answer shown.</i>			<i>Award the mark when the drawing or marking matches the answer shown.</i>	
15	10 cm	[2 marks]	16	More than a half	[1 mark]
	<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>			<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>	
17	They are the same strength	[1 mark]	18	0.3	[2 marks]
	<i>Award the mark for the correct choice only. Two or more choices marked scores no mark.</i>			<i>Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.</i>	

19	£80 increased by 25%	[1 mark]	20	25	[3 marks]
Award the mark for the correct choice only. Two or more choices marked scores no mark.			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.		
21	5100	[3 marks]	22	35	[3 marks]
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.			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.		
23	$x^2 + 25$	[1 mark]	24	20	[3 marks]
Award the mark for the correct choice only. Two or more choices marked scores no mark.			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.		
25	5 cm	[2 marks]	26	$\frac{16}{57}$	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.			Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		

Total

42 marks