

Year 10 Higher Maths Practice Paper 1

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.

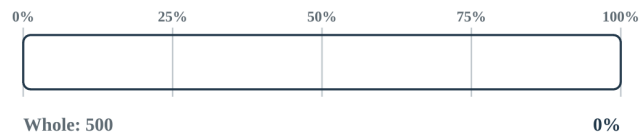
- 1** For the line $y = x - 2$, what is y when $x = -1$?

[1 mark]

ANSWER

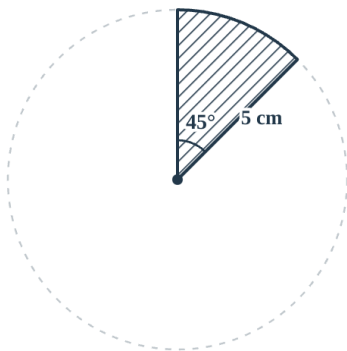
- 2** The bar stands for 500. Slide the fill to show 50% of it. Write the value the slider should show.

[1 mark]



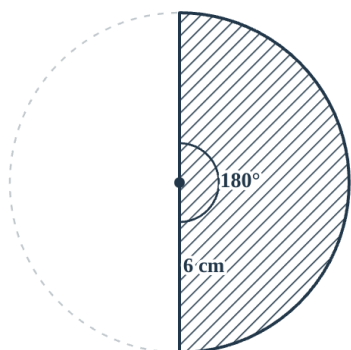
- 3** The slice is drawn on its whole circle. What fraction of the circle is it? Give the fraction in its simplest form. Write your answer as a fraction.

[1 mark]



ANSWER

- 4 The sector is drawn on its full circle. What fraction of the circle is the sector? Give the fraction in its simplest form. Write your answer as a fraction. [1 mark]



Grid for writing the answer.

ANSWER

Answer box.

- 5 A fair dice is rolled. What is the probability of a square number? Give a fraction in its simplest form. Write your answer as a fraction. [1 mark]

Grid for writing the answer.

ANSWER

Answer box.

- 6 A parallelogram has a base of 8 centimetres and a perpendicular height of 6 centimetres. What is its area in square centimetres? [1 mark]

Grid for writing the answer.

ANSWER

Answer box.

- 7 Which of these are like terms with $6x$, and which are not? Write each item under the right heading. [2 marks]

$6x$ 5 $-1x$ x $6x^2$ $2y$

Like terms with $6x$

Box for writing like terms with $6x$.

Not like terms

Box for writing not like terms.

- 8** A circle has a diameter of 6 centimetres. What is its circumference to one decimal place? [2 marks]

ANSWER

- 9** Work out $\frac{1}{10} \div \frac{3}{10}$. Give your answer in its simplest form. Write your answer as a fraction. [2 marks]

ANSWER

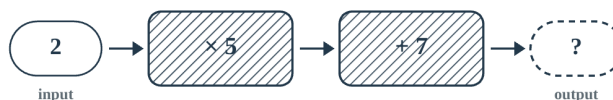
- 10** 24 out of 48 is 50%. Write 24 out of 48 as a fraction in its simplest form. Write your answer as a fraction. [1 mark]

ANSWER

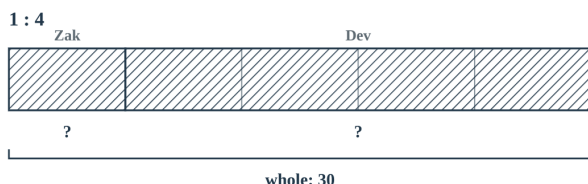
- 11** $\frac{1}{3}$ of the books are taken away. What fraction is left? Write your answer as a fraction. [1 mark]

ANSWER

- 12 2 goes into the machine. Write the value that leaves each box. Write the value that leaves each box on its arrow. [1 mark]



- 13 Zak and Dev share 30 in the ratio 1 : 4. How much does Zak get? [2 marks]



ANSWER

- 14 7 packs of pencils are bought at 4.2 pounds each, paid for with 40 pounds. Work out the change one step at a time. [2 marks]

The steps of the problem

each pack: 4.2 pounds

Number of packs: 7

Paid: 40 pounds

ANSWER

- 15 Leah spends $\frac{6}{7}$ of an hour on maths and $\frac{2}{3}$ of an hour on reading. What fraction of an hour is that altogether? Give your answer in its simplest form. Write your answer as a mixed number. [3 marks]

ANSWER

- 16 A school has 150 sand students and 90 cement students. Write the ratio of sand to cement in its simplest form. Circle your answer. [1 mark]

☐ 3 : 5

☐ 5 : 3

☐ 5 : 8

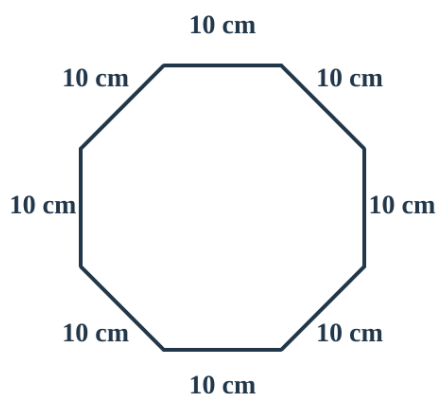
- 17 A games console cost £360 last year. Its price has risen by 20%. What does it cost now? [2 marks]

ANSWER

- 18 Factorise $9x^2 - 25$. [2 marks]

ANSWER

- 19 Every side of this octagon is 10 centimetres. What is its perimeter in centimetres? [2 marks]



ANSWER

- 20 Use the fact written above to work out the calculation below it. [2 marks]

Use what you know

$$25 \times 35 = 875$$

$$875 \div 25$$

ANSWER

- 21 The chance that a train is late is 8%. What is the chance it is not late, as a percentage? [2 marks]

ANSWER

- 22 How many different outcomes are there when four coins are flipped? [2 marks]

ANSWER

- 23 Nia spins a spinner 10 times and Jack spins the same spinner 500 times. Whose relative frequencies give the better estimate of the probabilities? Circle your answer.
☐ The one with 10 spins ☐ Both are equally good ☐ The one with 500 spins [1 mark]

- 24 A class from 20 to 50 has frequency 24. Assuming the items are spread evenly, how many are between 20 and 30? [2 marks]

ANSWER

- 25 How many different outcomes are there when a coin is flipped and two dice are rolled? [2 marks]

ANSWER

26

One triangular prism has a volume of 24 cubic centimetres. A second triangular prism has every length twice as big. What is its volume in cubic centimetres?

[2 marks]

ANSWER

Practice Paper 1

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	-3	[1 mark]
2	50% <i>Award the mark when the drawing or marking matches the answer shown.</i>	[1 mark]
3	$\frac{1}{8}$	[1 mark]
4	$\frac{1}{2}$	[1 mark]
5	$\frac{1}{3}$	[1 mark]
6	48 square centimetres	[1 mark]
7	6x: Like terms with 6x; 5: Not like terms; -1x: Like terms with 6x; x: Like terms with 6x; 6x ² : Not like terms; 2y: Not like terms <i>Award 2 marks when every part is correct. Award 1 mark when there is exactly one error.</i>	[2 marks]
8	18.8 cm <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]
9	$\frac{1}{3}$ <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	$\frac{1}{2}$	[1 mark]
11	$\frac{2}{3}$	[1 mark]
12	10 after $\times 5$, then 17 after $+ 7$ <i>Award the mark when the drawing or marking matches the answer shown.</i>	[1 mark]
13	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]

14	£10.6	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
15	$1\frac{11}{21}$	[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.		
16	5 : 3	[1 mark]
Award the mark for the correct choice only. Two or more choices marked scores no mark.		
17	£432	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
18	$(3x + 5)(3x - 5)$	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
19	80 cm	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
20	35	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
21	92 %	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
22	16	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
23	The one with 500 spins	[1 mark]
Award the mark for the correct choice only. Two or more choices marked scores no mark.		
24	8	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
25	72	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		
26	192 cm^3	[2 marks]
Award 2 marks for the correct answer. Award 1 mark for a correct method with no more than one arithmetic error.		

Total

42 marks