

Answer all questions in the spaces provided.

1 (a) Write down the value of 6^2 **[1 mark]**

Answer _____

1 (b) Work out $7.8 + 2.45 - 1.6$ **[2 marks]**

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Answer _____

2 Here is a triangle with side x measured and angle y marked.

[Triangle drawing with one side labelled x and one interior angle labelled y]

2 (a) Measure the length of side x . Give your answer in millimetres. **[1 mark]**

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$x =$ _____ mm

2 (b) Measure angle y . **[1 mark]**

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$y =$ _____ °

3 Write a number in the box to make the statement correct.

[1 mark]

$$4.2 < \boxed{}$$

4 Here is a number line going from 0 to 2 with a mark at point A.

[Number line from 0 to 2 with point A between 1 and 2, just past 1]

4 (a) Which number is at A?

[1 mark]

Answer _____

4 (b) Tom says, "The square of any whole number is always odd." Is he correct? Give a reason for your answer.

[1 mark]

5 Here is a regular shape.

[Regular star-shaped figure with 8-fold rotational symmetry]

Write down the order of rotational symmetry of the shape.

[1 mark]

Answer _____

6 (a) Simplify fully $b + b + b$

[1 mark]

Answer _____

6 (b) Factorise $3a + 12$

[1 mark]

Answer _____

6 (c) Multiply out $5(2y - 3)$

[2 marks]

Answer _____

7 Yara and Niko run a 10 km race.

7 (a) Niko starts the race at 10:25. He takes $2\frac{3}{4}$ hours to finish. At what time does he finish?

[2 marks]

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Answer _____

7 (b) Yara has a target time of 3 hours 5 minutes. She has been running for 142 minutes. To meet her target, how many minutes does she have left to finish the race?

[3 marks]

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Answer _____ minutes

8 Asha records the colours of cars passing her school in a tally chart.

[Tally chart with rows: Red |||| |||| ||| , Blue |||| ||| , White |||| |||| || , Black |||]

8 (a) Asha says: "The number of white cars is more than the total of the other colours." Is she correct? Tick a box. Show working. [2 marks]

Yes No

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8 (b) On the grid, draw a bar chart to represent the data in the tally chart. [3 marks]

[Empty axes for bar chart with frequency from 0 to 14 and labelled "Number of cars"]

- 9 Put the whole numbers 1 to 12 into the boxes to make the calculations correct. Each number can only be used once.

$$[_] + [_] + [_] = 9$$

$$[_] + [_] + [_] = 30$$

$$[_] + [_] + [_] = 14$$

$$[_] + [_] + [_] = 25$$

[3 marks]

- 10 A regular pentagon has perimeter 80 mm. A square is joined to one side of the pentagon to make a new shape. Work out the perimeter of the new shape.

[Diagram of pentagon with a square attached to one side. Not drawn accurately.]

[3 marks]

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Answer _____ mm

11 Last week, Rosa worked for 8 hours. She paid no tax and received £80.

11 (a) This week, Rosa works for 12 hours at the same rate (no tax). How much does she expect to receive this week?

[3 marks]

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Answer £ _____

11 (b) In fact, this week, Rosa is paid an extra 50p per hour and pays £6.40 tax. What does this tell you about the amount she receives compared with what she expected? Tick one box and show working.

[2 marks]

- It is less than she expected
- It is the same as she expected
- It is more than she expected

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12 Complete the list of six numbers so that: the mode is 7, the median is 10, the range is 14. [3 marks]

[_ _] 7 [_ _] [_ _] 1 6
[_ _]

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13 A shape has an even number of sides, more sides than a square, and fewer sides than a decagon. Write down the name of one shape this could be.

[1 mark]

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Answer _____

14

On the grid, draw the graph of $y = 2x - 3$ for values of x from -2 to 4 .

[3 marks]

[Coordinate grid: x from -3 to 5 , y from -10 to 10 , 1 cm squares]

15

Work out $\frac{3}{5} + \frac{1}{4}$. Give your answer as a mixed number where appropriate, in its simplest form.

[3 marks]

Answer _____

- 16** Here is a triangle drawn on a coordinate grid. The triangle is reflected in a vertical line. Two of the vertices of the reflected triangle are at (8, 4) and (8, 8).

[Coordinate grid showing original triangle with vertices visible, reflection line implied vertical]

- 16 (a)** What are the coordinates of the other vertex of the reflected triangle? **[1 mark]**

(_____ , _____)

- 16 (b)** What is the equation of the line of reflection? **[1 mark]**

Answer _____

- 17** Ben has £90. He gives $\frac{8}{9}$ of his money to Cara. Cara spends $\frac{3}{4}$ of this money. She gives the rest back to Ben.

What fraction of the £90 does Ben have now? Give your answer in its simplest form. **[4 marks]**

Answer _____

18 Work out $\sqrt{81 - 4(3^2 - 4)}$

[3 marks]

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Answer _____

19 What does $(A \cap B)$ represent in $P(A \cap B)$? Circle your answer.

[1 mark]

A or B or both A and B not A and not B A but not B

20 Salma is raising money for charity. Her mum says: "Whatever amount you raise, I will add half that amount." Show this information by drawing a graph on each grid below.

[Two grids: one labelled 'Amount added by mum' vs 'Amount raised by Salma' (0 to 100); one labelled 'Total amount raised' vs 'Amount raised by Salma' (0 to 200)]

[2 marks]

21 Write down the value of $\cos 0^\circ$

[1 mark]

Answer _____

22 Work out $(3^2 \times 3^4) \div (3^5 \times 3^{-2})$. Give your answer as a single power of 3, then evaluate as a whole number.

[3 marks]

Answer _____

23 Write down the equation of a line parallel to $y = 4x - 1$

[1 mark]

Answer _____

24 A scatter graph shows the number of texts sent and the number of phone calls made by 10 people in a week. The graph shows positive correlation.

[Scatter graph with 10 plotted points showing positive correlation, line of best fit drawn from approx (0, 1) to (50, 9)]

24 (a) Describe the relationship between the number of texts sent and the number of phone calls made. **[1 mark]**

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24 (b) A person sends 30 texts in a week and is charged 5p per text and 20p per call. Use the graph to estimate the total amount that person spends on texts and calls. **[3 marks]**

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Answer £ _____

25 60% of a number is 240. Work out 130% of the same number. **[3 marks]**

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Answer _____

26 Here is the graph of $y = 0.5x^2 - 5x + 8$.

[Parabola drawn between $x = 0$ and $x = 10$, crossing x -axis at approximately $x = 1.9$ and $x = 8.1$, with minimum near $(5, -4.5)$]

Use the graph to estimate the solutions of $0.5x^2 - 5x + 8 = 0$

[2 marks]

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$x =$ _____ or $x =$ _____

27 Shape A is a circle with radius $\frac{\sqrt{15}}{2}$ cm. Shape B is a sector of a circle with radius 4 cm and angle 80° .

Which shape has the greater area, A or B? You must show your working.

[Two shapes: Circle A on the left, Sector B on the right with a 80° angle marked. Not drawn accurately.]

[5 marks]

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Answer _____

28 Factorise $x^2 + 3x - 28$

[2 marks]

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Answer _____

29

29 (a) Write 5×10^4 as an ordinary number.

[1 mark]

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Answer _____

29 (b) Simplify $(5 \times 10^4) : (2 \times 10^{-1})$. Give your answer in the form $n : 1$

[2 marks]

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Answer _____ : 1

END OF QUESTIONS