

- 1 A train left Sydney at 23 20 on December 18th and arrived in Brisbane at 02 40 on December 19th. How long, in hours and minutes, was the journey?

Answer h min [1]

- 2 Use your calculator to find the value of

$$\frac{6 \sin 50^\circ}{\sin 25^\circ}.$$

Answer [1]

- 3 Write the numbers 0.5^2 , $\sqrt{0.5}$, 0.5^3 in order with the **smallest** first.

Answer < < [2]

- 4 Simplify

$$\frac{2}{3} p^{12} \times \frac{3}{4} p^8.$$

Answer [2]

- 5 Solve the equation

$$\frac{x}{4} - 8 = -2.$$

Answer $x =$ [2]

- 6 The population, P , of a small island was 6380, correct to the nearest 10. Complete the statement about the limits of P .

Answer $\leq P <$ [2]

7 Work out the value of

$$\frac{-\frac{1}{2} - \frac{3}{8}}{-\frac{1}{2} + \frac{3}{8}}$$

Answer [2]

8



For the shape above, write down

(a) the number of lines of symmetry,

Answer(a) [1]

(b) the order of rotational symmetry.

Answer(b) [1]

9 Sara has \$3000 to invest for 2 years.
She invests the money in a bank which pays simple interest at the rate of 7.5% per year.
Calculate how much interest she will have at the end of the 2 years.

Answer \$ [2]

10 The area of a small country is 78 133 square kilometres.

(a) Write this area correct to 1 significant figure.

Answer(a) km² [1]

(b) Write your answer to **part (a)** in standard form.

Answer(b) km² [1]

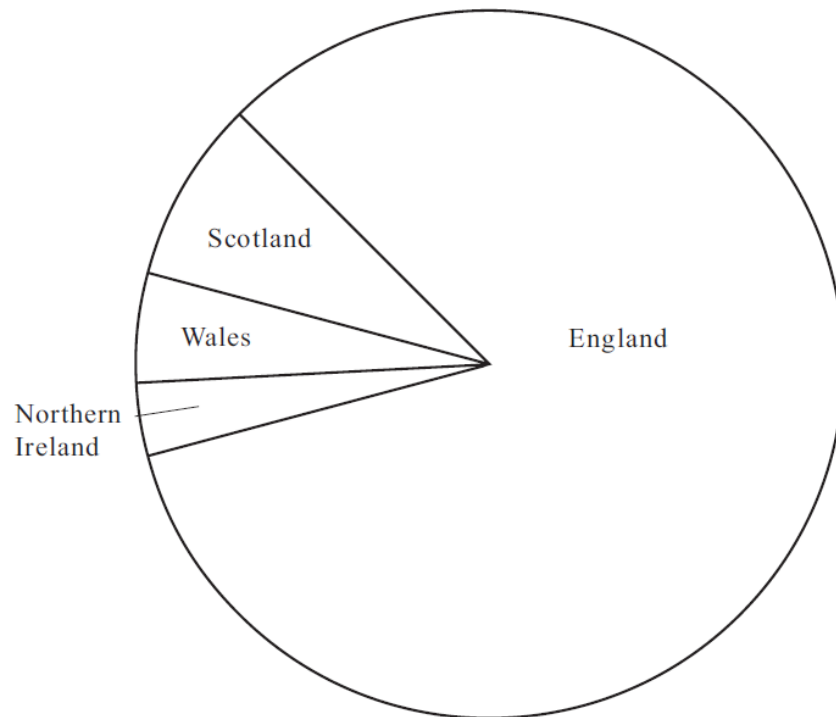
11 Solve the simultaneous equations

$$\frac{1}{2}x + y = 5,$$

$$x - 2y = 6.$$

Answer $x =$ $y =$ [3]

12 The populations of the four countries of the United Kingdom, in the year 2000, are shown on the pie chart below.



Taking measurements from the pie chart, complete the table.

Country	Population (millions)
England	
Scotland	
Wales	
Northern Ireland	2

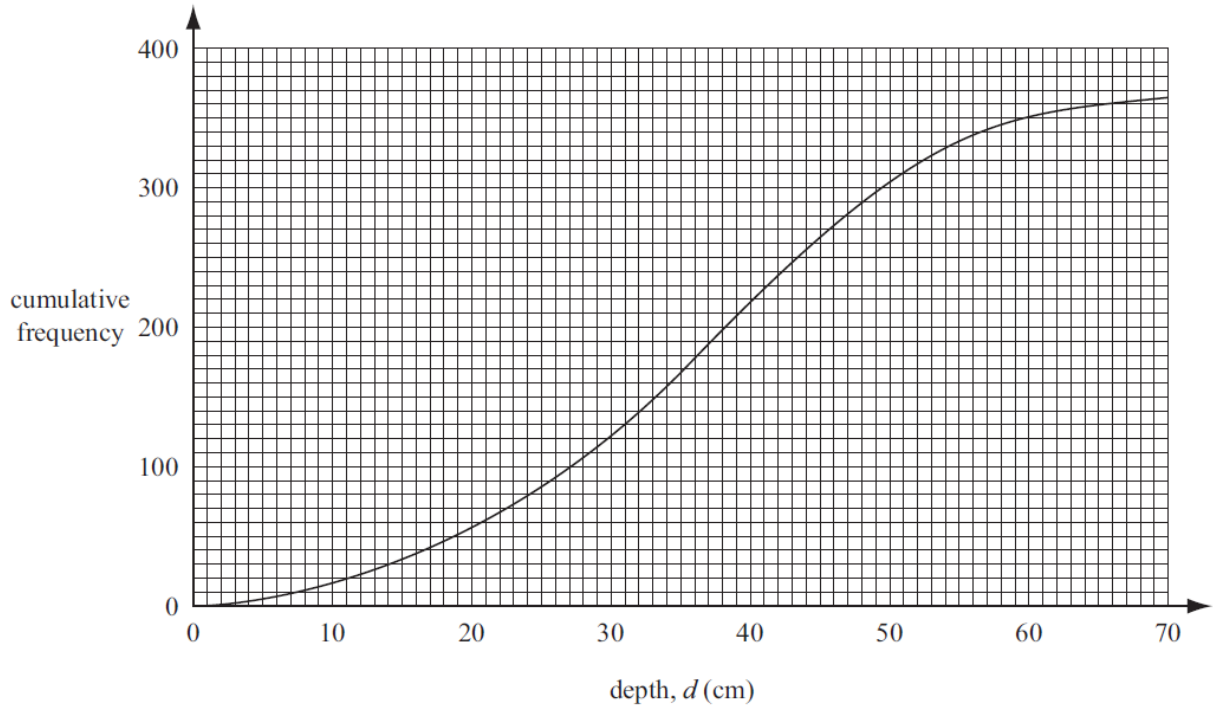
[3]

SECTION B

1 Fatima and Mohammed each buys a bike.

- (a) Fatima buys a city-bike which has a price of \$120.
She pays 60% of this price and then pays \$10 per month for 6 months.
- (i) How much does Fatima pay altogether? [2]
- (ii) Work out your answer to **part (a)(i)** as a percentage of the original price of \$120. [2]
- (b) Mohammed pays \$159.10 for a mountain-bike in a sale.
The original price had been reduced by 14%.
Calculate the original price of the mountain-bike. [2]
- (c) Mohammed's height is 169 cm and Fatima's height is 156 cm.
The frame sizes of their bikes are in the same ratio as their heights.
The frame size of Mohammed's bike is 52 cm.
Calculate the frame size of Fatima's bike. [2]
- (d) Fatima and Mohammed are members of a school team which takes part in a bike ride for charity.
- (i) Fatima and Mohammed ride a total distance of 36 km.
The ratio distance Fatima rides : distance Mohammed rides is 11 : 9.
Work out the distance Fatima rides. [2]
- (ii) The distance of 36 km is only $\frac{2}{23}$ of the total distance the team rides.
Calculate this total distance. [2]

- 3 The depth, d centimetres, of a river was recorded each day during a period of one year (365 days). The results are shown by the cumulative frequency curve.

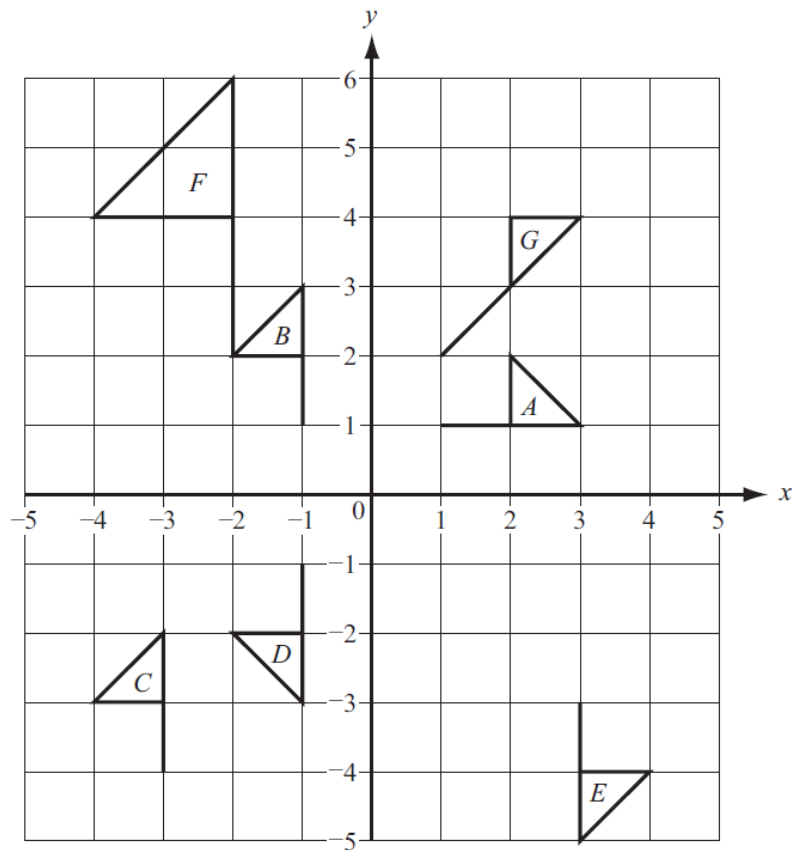


- (a) Use the cumulative frequency curve to find
- (i) the median depth, [1]
 - (ii) the inter-quartile range, [2]
 - (iii) the depth at the 40th percentile, [2]
 - (iv) the number of days when the depth of the river was **at least** 25 cm. [2]

(b)

d	$0 < d \leq 10$	$10 < d \leq 20$	$20 < d \leq 30$	$30 < d \leq 40$	$40 < d \leq 50$	$50 < d \leq 60$	$60 < d \leq 70$
Number of days	17	41	62	98	85	p	q

- (i) Show that $p = 47$ and $q = 15$. [2]
- (ii) Use the information in the table and the values of p and q to calculate an estimate of the mean depth of the river. [4]



- (a) Describe fully the **single** transformation which maps
- (i) shape *A* onto shape *B*, [2]
 - (ii) shape *B* onto shape *C*, [2]
 - (iii) shape *A* onto shape *D*, [2]
 - (iv) shape *B* onto shape *E*, [2]
 - (v) shape *B* onto shape *F*, [2]
 - (vi) shape *A* onto shape *G*. [2]
- (b) A transformation is represented by the matrix $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$.
- Which shape above is the image of shape *A* after this transformation? [2]
- (c) Find the 2 by 2 matrix representing the transformation which maps
- (i) shape *B* onto shape *D*, [2]
 - (ii) shape *A* onto shape *G*. [2]