Name ..... Class .....

Non-Calculator Crossover Paper 10

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Non-Calculator

1 (a) Work out $2^3 \times 5^2$

..... **(1)**

(b) Work out the value of $\frac{(10^2)^3}{10^4}$

..... **(2)**

[Question 1: 3 marks]

2 Work out $3\frac{3}{4} \div 1\frac{1}{2}$

..... **(2)**

[Question 2: 2 marks]

3 At a railway station, a train to Leeds leaves every 15 minutes.

A train to York leaves every 25 minutes.

A train to Leeds and a train to York both leave the station at 8:30 am.

When is the next time a train to Leeds and a train to York both leave the station at the same time?

..... **(2)**

[Question 3: 2 marks]

4 There are 30 pens in a box.

Each pen is either blue or black.

A pen is taken at random from the box. The probability that the pen is blue is $\frac{2}{5}$

(a) Work out the number of blue pens in the box.

..... **(1)**

(b) 4 more blue pens are put into the box.

A pen is now taken at random from the box.

Work out the probability that this pen is blue.

..... **(2)**

[Question 4: 3 marks]

5 Jasmine drives 150 km from her home to the coast.

Her journey takes 1 hour 40 minutes.

Work out her average speed.

Give your answer in km/h.

..... km/h **(3)**

[Question 5: 3 marks]

6 A gardening club has some male members and some female members.

The number of female members is $\frac{3}{5}$ of the number of male members.

(a) Write down the ratio of the number of male members to the number of female members.

..... **(1)**

(b) There are 24 more male members than female members.

Work out the total number of members of the club.

..... **(2)**

[Question 6: 3 marks]

7 Here are the first four terms of an arithmetic sequence.

3 11 19 27

(a) Find an expression, in terms of n, for the nth term of this sequence.

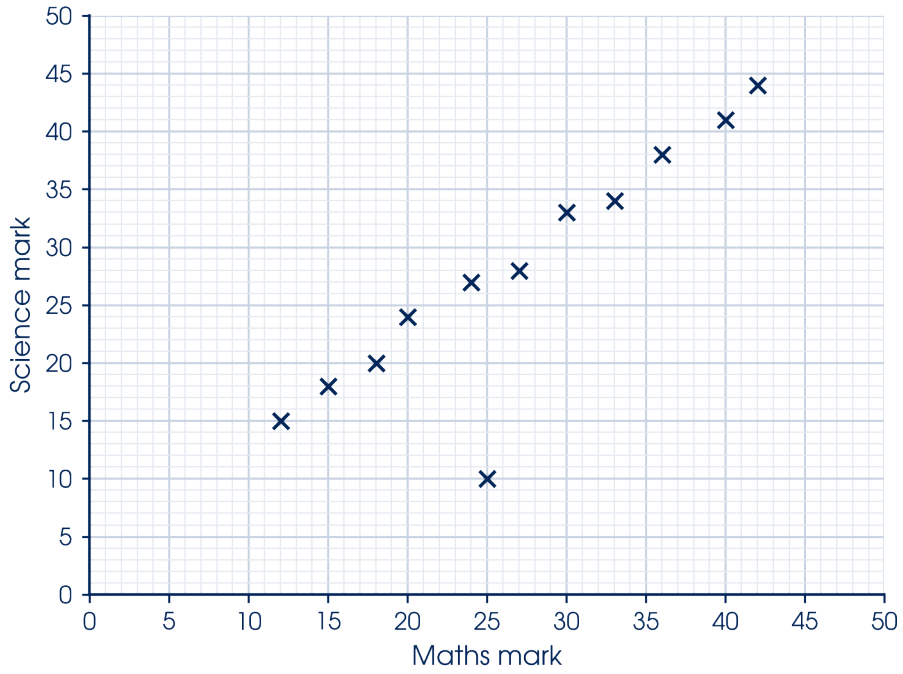
..... **(2)**

(b) Which term of the sequence is equal to 155?

..... **(1)**

[Question 7: 3 marks]

8 The scatter graph shows the marks some students got in a maths test and in a science test.



(a) One of the points is an outlier.

Write down the coordinates of this point.

(.....) **(1)**

(b) Ignoring the outlier, use the scatter graph to estimate the science mark of a student who got 35 in the maths test.

..... **(2)**

(c) Kamal got 4 marks in the maths test.

Explain why it may not be reliable to use the scatter graph to estimate his science mark.

.....

..... **(1)**

[Question 8: 4 marks]

9 Amy is x years old.

Ben is 3 years older than Amy.

Cara is twice as old as Ben.

(a) Write an expression, in terms of x, for Cara's age.

..... **(1)**

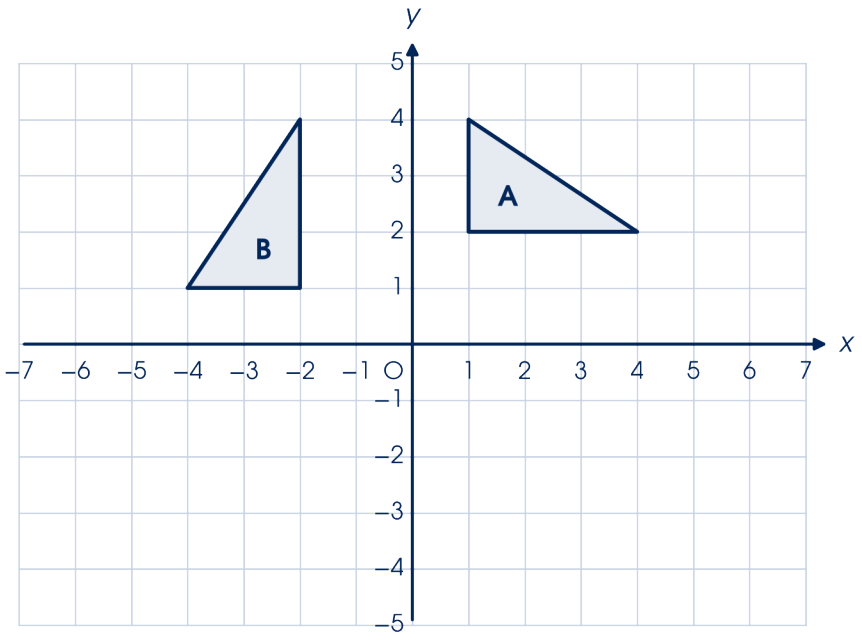
(b) The total of their three ages is 61 years.

Work out Amy's age.

..... **(3)**

[Question 9: 4 marks]

10



(a) Describe fully the **single** transformation that maps shape **A** onto shape **B**.

.....

..... **(3)**

(b) On the grid, reflect shape **A** in the line $y = 1$

(1)

[Question 10: 4 marks]

11 The diagram shows a prism.

The cross section of the prism is a trapezium.

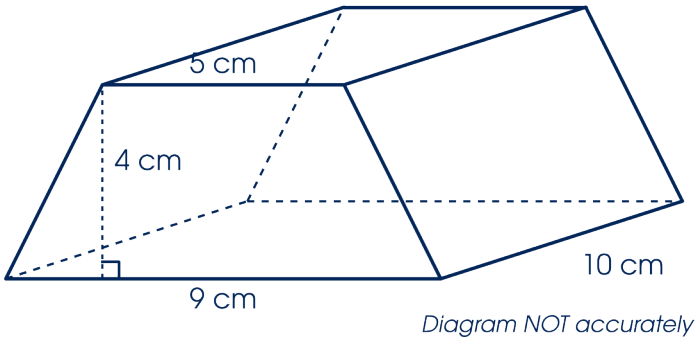


Diagram NOT accurately drawn

Work out the volume of the prism.

..... cm^3 **(3)**

[Question 11: 3 marks]

12 (a) Solve $2x + 9 > 5x - 3$

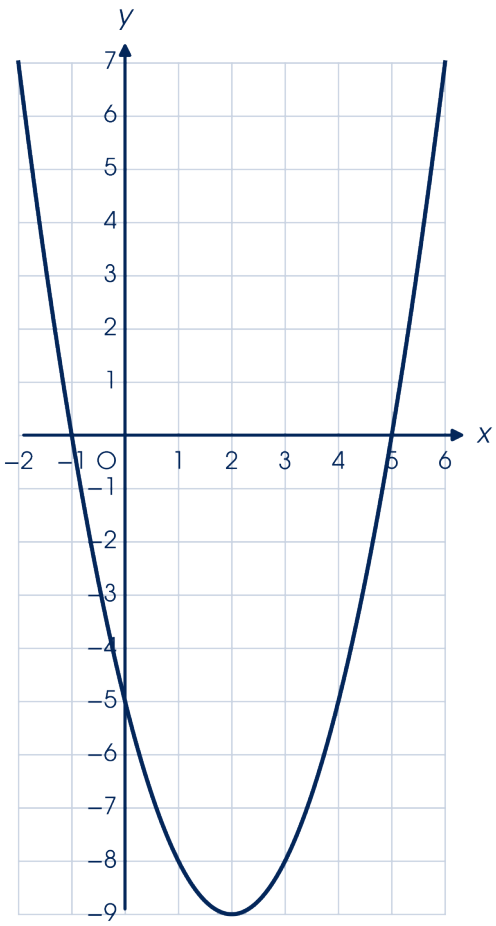
..... **(2)**

(b) Write down all the positive integers that satisfy $2x + 9 > 5x - 3$

..... **(1)**

[Question 12: 3 marks]

13 Here is the graph of $y = x^2 - 4x - 5$ for values of x from -2 to 6



(a) Use the graph to write down the solutions of $x^2 - 4x - 5 = 0$

..... **(2)**

(b) Write down the coordinates of the turning point of the graph.

(.....) **(1)**

[Question 13: 3 marks]

TOTAL FOR PAPER IS 40 MARKS