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

# Non-Calculator Crossover Paper 6

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Non-Calculator

**1** (a) Write down the value of the cube root of 64

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

(b) Work out $2^5 - \sqrt{36}$

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

**[Question 1: 2 marks]**

**2** Work out 3.6 × 2.4

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

**[Question 2: 2 marks]**

**3** Ella has a piece of ribbon that is $5\frac{1}{4}$ metres long.

She cuts off one piece of length $1\frac{2}{3}$ metres and another piece of length $2\frac{1}{2}$ metres.

Work out the length of ribbon she has left.

Give your answer as a mixed number.

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

**[Question 3: 3 marks]**

**4** Here are the ingredients needed to make 12 flapjacks.

| Flapjacks (makes 12) |
|---|
| 150 g oats |
| 90 g butter |
| 60 g sugar |
| 45 g golden syrup |

Kai wants to make 30 flapjacks.

He has 400 g of oats, 250 g of butter, 200 g of sugar and 100 g of golden syrup.

Does Kai have enough of each ingredient to make 30 flapjacks?

You must show your working.

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

**[Question 4: 3 marks]**

**5** (a) Expand and simplify $5(x + 2) - 3(x - 4)$

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

(b) Expand and simplify $(x - 5)(x + 3)$

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

**[Question 5: 4 marks]**

**6** Here are the first four terms of an arithmetic sequence.

31 27 23 19

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

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

(b) Which term of the sequence is equal to $-29$?

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

**[Question 6: 3 marks]**

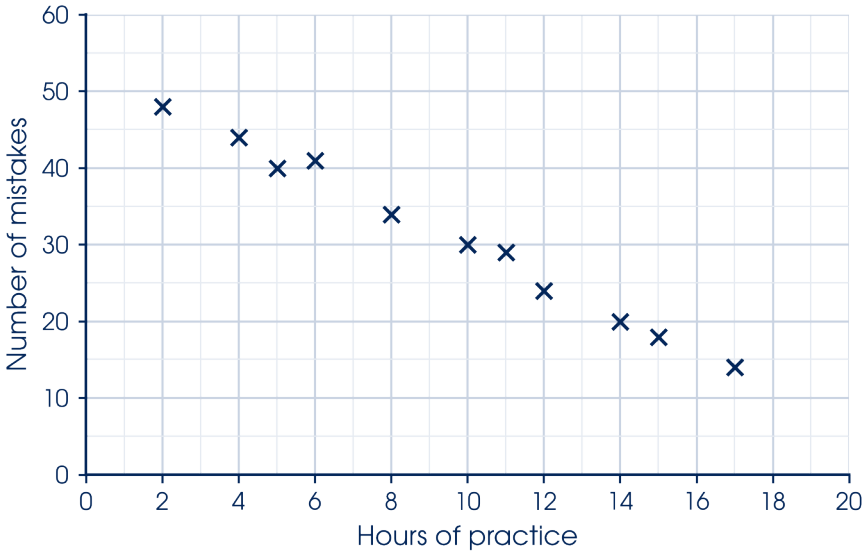
**7** Solve $\frac{x}{4} + 3 = 2x - 4$

$x =$ ..... **(3)**

**[Question 7: 3 marks]**

**8** A music teacher recorded the number of hours 11 students practised the piano in a month and the number of mistakes each student made in a test piece.

The scatter graph shows this information.




(a) Describe the relationship between the number of hours of practice and the number of mistakes.

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

(b) Another student practised for 9 hours.

By drawing a suitable line, estimate the number of mistakes this student made.

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

**[Question 8: 3 marks]**

**9** 90 students on a school trip each chose one activity: climbing, kayaking or archery.

The two-way table shows some information about their choices.

(a) Complete the two-way table.

| | Climbing | Kayaking | Archery | Total |
|---|---|---|---|---|
| **Boys** | 14 | | 11 | 46 |
| **Girls** | | 18 | | |
| **Total** | 27 | | 24 | 90 |

**(2)**

(b) One of the students is chosen at random.

Write down the probability that this student is a girl who chose archery.

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

**[Question 9: 3 marks]**

**10** A garden centre sells plant pots and plants.

5 pots and 2 plants cost a total of £46

3 pots and 4 plants cost a total of £36

Work out the cost of one pot and the cost of one plant.

Pot £.....

Plant £..... **(4)**

**[Question 10: 4 marks]**

**11** *AB* and *CD* are parallel lines.

*EFG* is a straight line.

*F* lies on *AB*. *G* and *H* lie on *CD*.

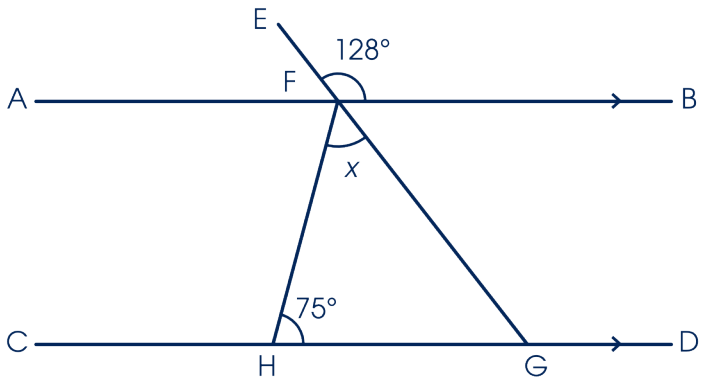



*Diagram NOT accurately drawn*

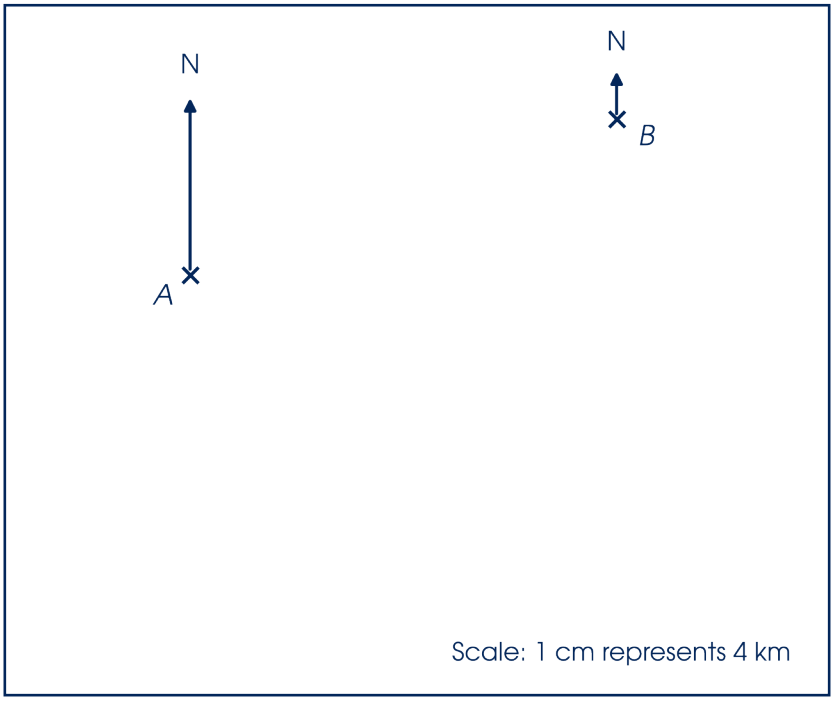
Work out the size of the angle marked *x*.

Give a reason for each stage of your working.

..... ° **(3)**

**[Question 11: 3 marks]**

**12** The map shows the positions of two villages, *A* and *B*.




(a) Find the real distance between village *A* and village *B*.

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

(b) Village *C* is 20 km from village *A* on a bearing of 150°.

On the map, mark the position of village *C* with a cross (×). Label it *C*.

**(2)**

**[Question 12: 4 marks]**

**13** A tin of soup is in the shape of a cylinder.

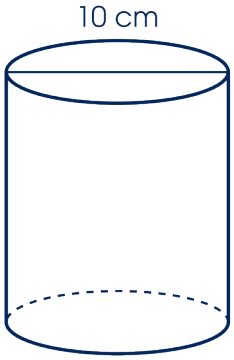



*Diagram NOT accurately drawn*

The diameter of the tin is 10 cm.

The volume of the tin is $450\pi$ cm$^3$.

Work out the height of the tin.

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

**[Question 13: 3 marks]**

**TOTAL FOR PAPER IS 40 MARKS**