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

Non-Calculator Crossover Paper 3

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Non-Calculator

1 A school is taking 412 students on a trip to a museum.

Each coach can carry 52 students.

It costs £385 to hire each coach.

Work out the least it will cost to hire enough coaches for all the students.

£ ..... **(3)**

[Question 1: 3 marks]

2 At a youth club, the ratio of the number of boys to the number of girls is 4 : 5

(a) What fraction of the members of the youth club are boys?

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

(b) One evening there are 63 members at the youth club.
The ratio of boys to girls is still 4 : 5
5 more boys then arrive.
What fraction of the members at the youth club are now boys?

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

[Question 2: 3 marks]

3 Ravi is paid the same amount each month.

Each month, he spends $\frac{1}{4}$ of his pay on rent and $\frac{2}{5}$ of his pay on food.

He saves the rest of his pay.

Each month, Ravi saves £840.

How much is Ravi paid each month?

£..... **(3)**

[Question 3: 3 marks]

4 In a sale, all normal prices are reduced by 15%.

The sale price of a bike is £204.

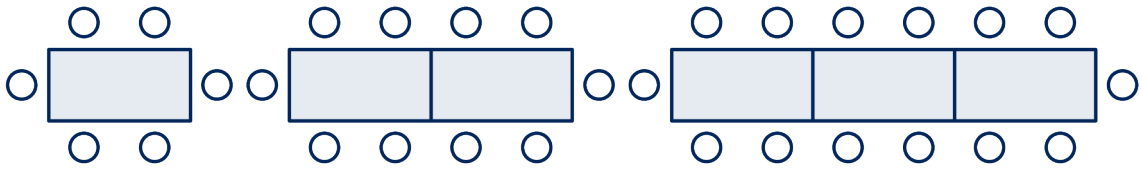
Work out the normal price of the bike.

£ ..... **(3)**

[Question 4: 3 marks]

5 A café puts tables in a row with chairs around them.

The diagrams show how chairs are put around 1 table, 2 tables and 3 tables.



1 table 2 tables 3 tables

(a) Find an expression, in terms of n, for the number of chairs around n tables in a row.

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

(b) A group of 75 people want to sit at one row of these tables.

The café manager says every chair can have one person sitting on it.

Is the manager correct?

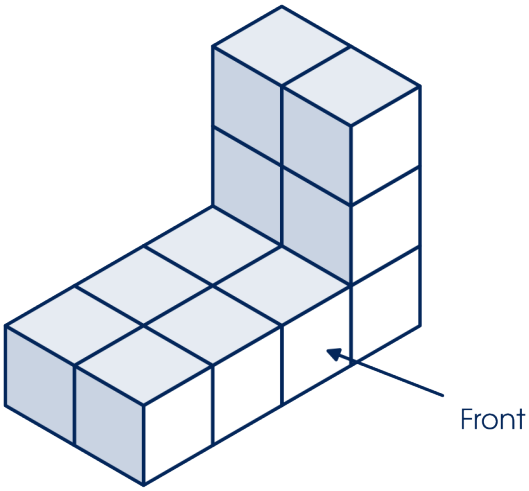
You must give a reason for your answer.

.....

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

[Question 5: 3 marks]

6 The diagram shows a solid prism made from centimetre cubes.



(a) On the centimetre grid, draw the plan of the solid prism.

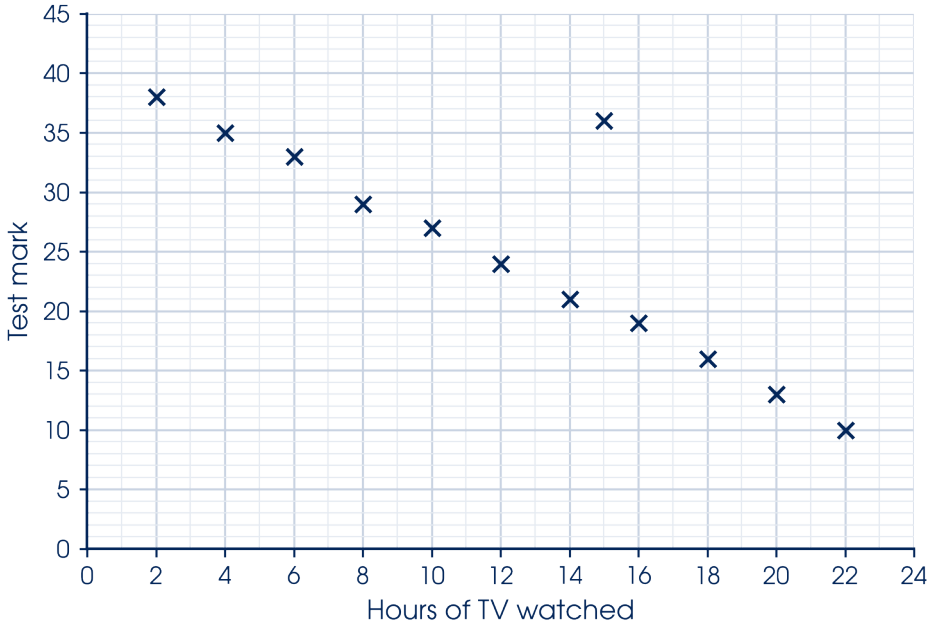
(2)

(b) On the centimetre grid, draw the front elevation of the solid prism.

(1)

[Question 6: 3 marks]

7 The scatter graph shows the number of hours of TV each of 12 students watched last week and the mark each student got in a science test.



(a) One of the points is an outlier.

Write down the coordinates of this point.

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

(b) For all the other points, describe the relationship between the number of hours of TV watched and the test mark.

.....

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

(c) Another student watched 13 hours of TV last week.

By drawing a suitable line, estimate this student's test mark.

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

[Question 7: 4 marks]

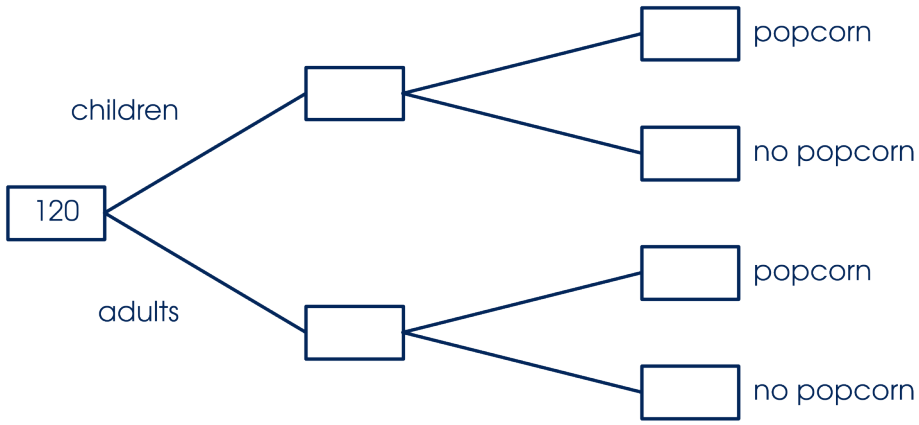
8 120 people watched a film at a cinema.

45 of the people were children.

$\frac{2}{3}$ of the children bought popcorn.

24 of the adults bought popcorn.

(a) Use this information to complete the frequency tree.



(3)

(b) One of the people who bought popcorn is chosen at random.

Work out the probability that this person is an adult.

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

[Question 8: 5 marks]

9 (a) Write 7.3×10^{-3} as an ordinary number.

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

(b) Work out $(3 \times 10^{5}) \div (6 \times 10^{-2})$

Give your answer in standard form.

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

[Question 9: 3 marks]

10 Solve the simultaneous equations

$$2x + 3y = 13$$
$$5x - 2y = 4$$

$x =$ .....

$y =$ ..... **(3)**

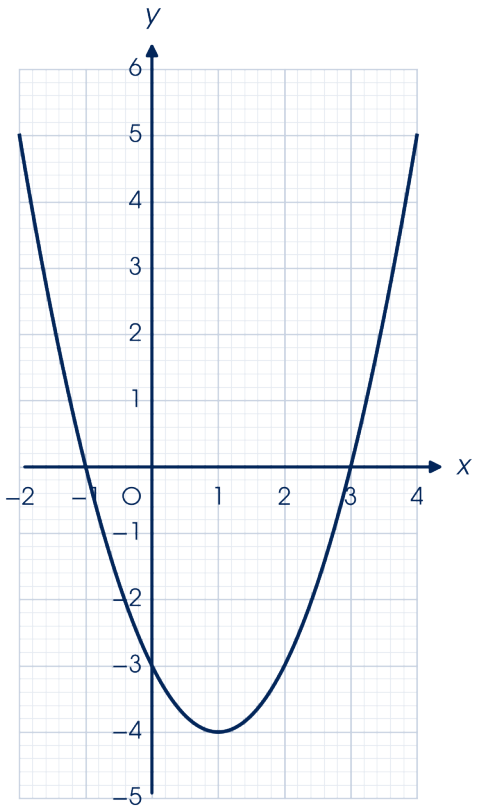
[Question 10: 3 marks]

11 Solve $x^2 - 2x - 24 = 0$ by factorising.

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

[Question 11: 3 marks]

12 Here is the graph of $y = x^2 - 2x - 3$ for values of x from -2 to 4



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

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

(b) Write down the roots of $x^2 - 2x - 3 = 0$

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

(c) Use the graph to find estimates of the solutions of $x^2 - 2x - 3 = 2$

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

[Question 12: 4 marks]

TOTAL FOR PAPER IS 40 MARKS