Pearson
Edexcel GCSE

Mathematics B
Unit 1: Statistics and Probability (Calculator)

Foundation Tier

Monday 9 June 2014 – Morning	Paper Reference
Time: 1 hour 15 minutes	**5MB1F/01**

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 60
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
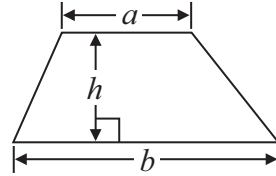- Check your answers if you have time at the end.

Turn over ▶

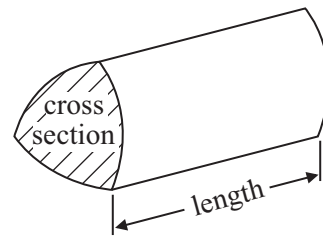**PEARSON**

GCSE Mathematics 2MB01

Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium $= \frac{1}{2}(a + b)h$
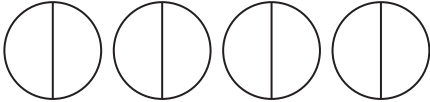

Volume of prism = area of cross section × length
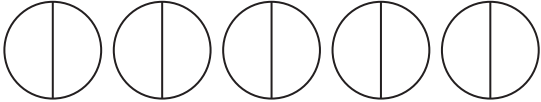
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1   The pictogram shows information about the number of hours of sunshine at a seaside resort on Monday, on Tuesday and on Wednesday one week.

Monday	◐ ◐ ◐ ◐
Tuesday	◐ ◐ ◐ ◖
Wednesday	◐ ◐ ◐ ◐ ◐
Thursday	
Friday	

Key:
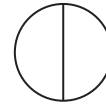
◐ represents 2 hours

(a) Write down the number of hours of sunshine on Wednesday.

....
(1)

(b) Write down the number of hours of sunshine on Tuesday.

....
(1)

There were 4 hours of sunshine on Thursday.
There were 9 hours of sunshine on Friday.

(c) Use this information to complete the pictogram.

(2)

(Total for Question 1 is 4 marks)

2 The table shows information about 5 bicycles for sale in a shop.

Name	Price	Weight (kg)	Number of Gears	Frame Size (inches)	Colour
Rushmore	£269	13.5	21	20	white
Bowfell	£379	14.6	24	18	grey
Grisdale	£449	13.8	27	20	white
Fairfield	£499	14.1	27	18	red
Skiddaw	£379	14.8	21	20	orange

(a) How many of these bicycles have a weight less than 14 kg?

....

(1)

Richard wants to buy one of the bicycles with a frame size of 18 inches.

(b) Write down the colours of the bicycles he could buy.

....

(1)

Two of the bicycles have the same price.
Leonard wants to buy the one that has the greater number of gears.

(c) Write down the name of the bicycle that Leonard should buy.

....

(1)

(Total for Question 2 is 3 marks)

3 Beth recorded the temperature, in degrees (°C), inside her greenhouse every hour on one day.

The graph shows information about her results.
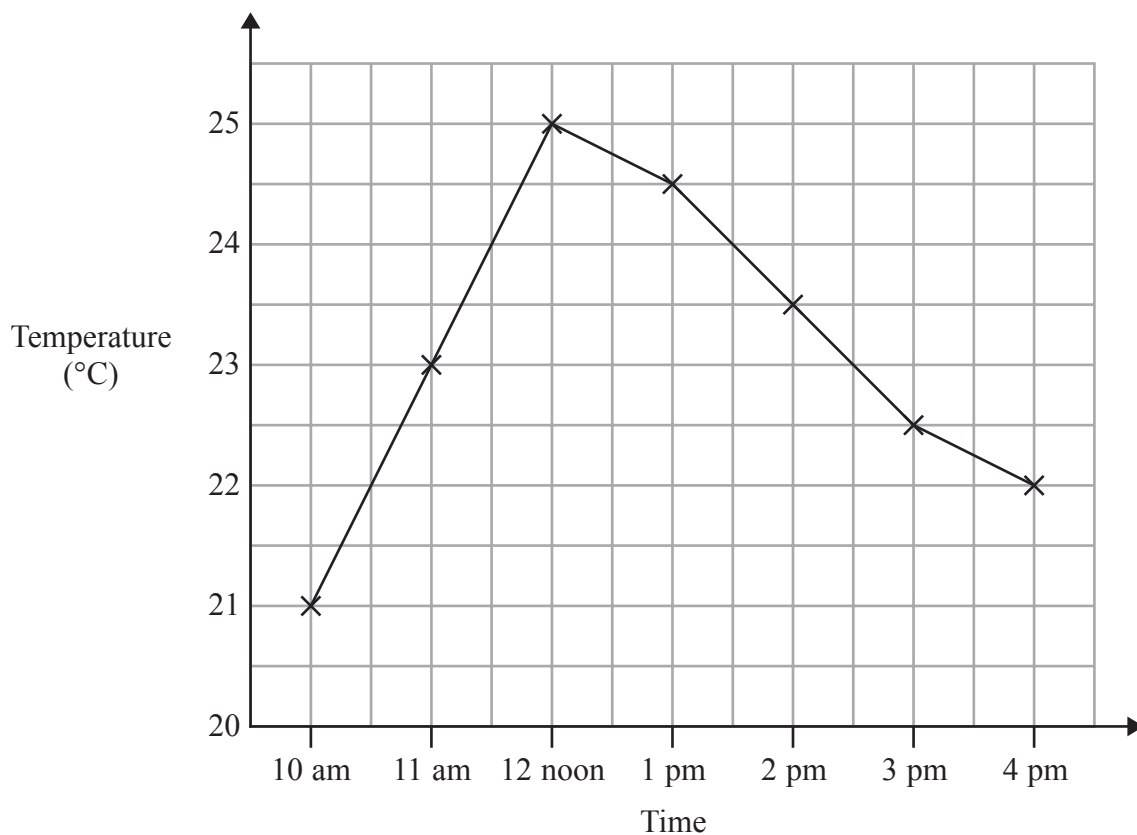
(a) Write down the temperature at 11 am.

.... °C
(1)

(b) Write down the highest recorded temperature.

.... °C
(1)

(c) Describe the change in temperature from 12 noon to 4 pm.

....

....
(1)

(Total for Question 3 is 3 marks)

4 Here is a fair 4-sided spinner.
The spinner can land on blue or on red or on green.
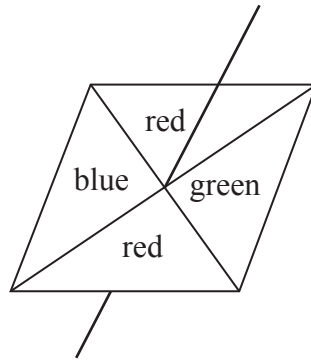
Lance spins the spinner once.

(a) On the probability scale, mark with a cross (×) the probability that the spinner will land on red.

```
├─────────────────────┼─────────────────────┤
0                     1                     1
                      ─
                      2
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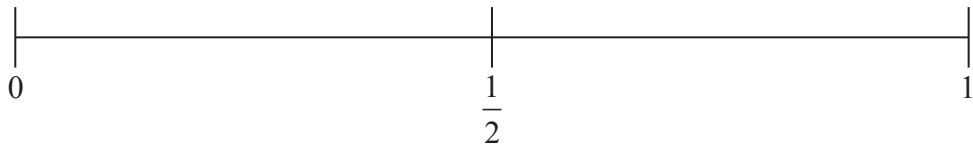
(1)

(b) On the probability scale, mark with a cross (×) the probability that the spinner will land on yellow.

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├─────────────────────┼─────────────────────┤
0                     1                     1
                      ─
                      2
```
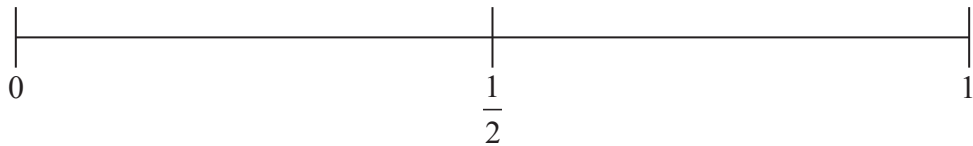
(1)

(c) On the probability scale, mark with a cross (×) the probability that the spinner will **not** land on green.

```
├─────────────────────┼─────────────────────┤
0                     1                     1
                      ─
                      2
```

(1)
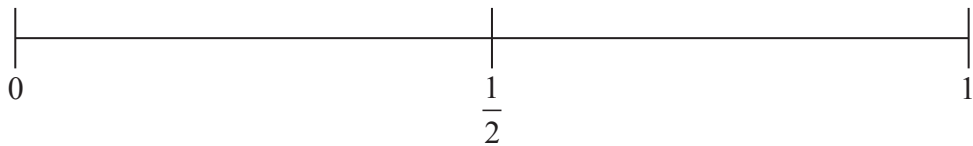
(Total for Question 4 is 3 marks)

*5 Jean is going to the beach.
It takes her 25 minutes to get from her home to the beach.
It takes her 25 minutes to get from the beach to her home.

Jean leaves home at 2.40 pm.
She has to get home by 6 pm.

What is the greatest length of time Jean can stay at the beach?

....

(Total for Question 5 is 4 marks)

6 A cafe sells drinks and snacks.

Drinks	**Snacks**
Tea	Sandwich
Coffee	Roll
Milkshake	Fruit

Lisa chooses one drink and one snack.
Write down all the possible combinations that Lisa can choose.

....

....

....

(Total for Question 6 is 2 marks)

7 Mr Khan asked the 22 students in his class what activity they wanted to do on a school trip.

Here are the results.

bowling	swimming	roller skating	swimming
swimming	bowling	roller skating	roller skating
roller skating	swimming	roller skating	swimming
swimming	cinema	bowling	cinema
cinema	roller skating	swimming	swimming
swimming	bowling		

(a) Complete the frequency table.

Activity	Tally	Frequency
bowling		
swimming		
roller skating		
cinema		

(2)

(b) Write down the mode.

....

(1)

(c) Show the results of Mr Khan's survey in a suitable diagram.

(3)
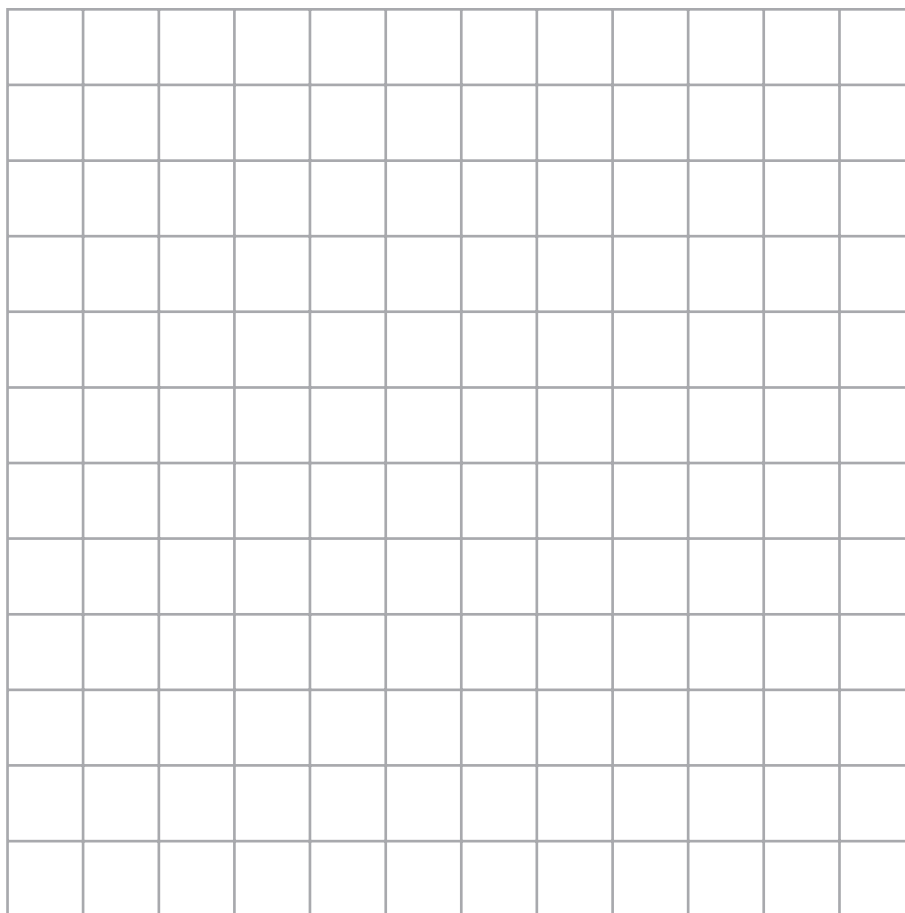
(Total for Question 7 is 6 marks)

Turn over ▶

*8 Mr Shah is thinking of having a water meter fitted for his house.
For a house with a water meter fitted, the graph shows information about the cost, in pounds (£), of buying water.
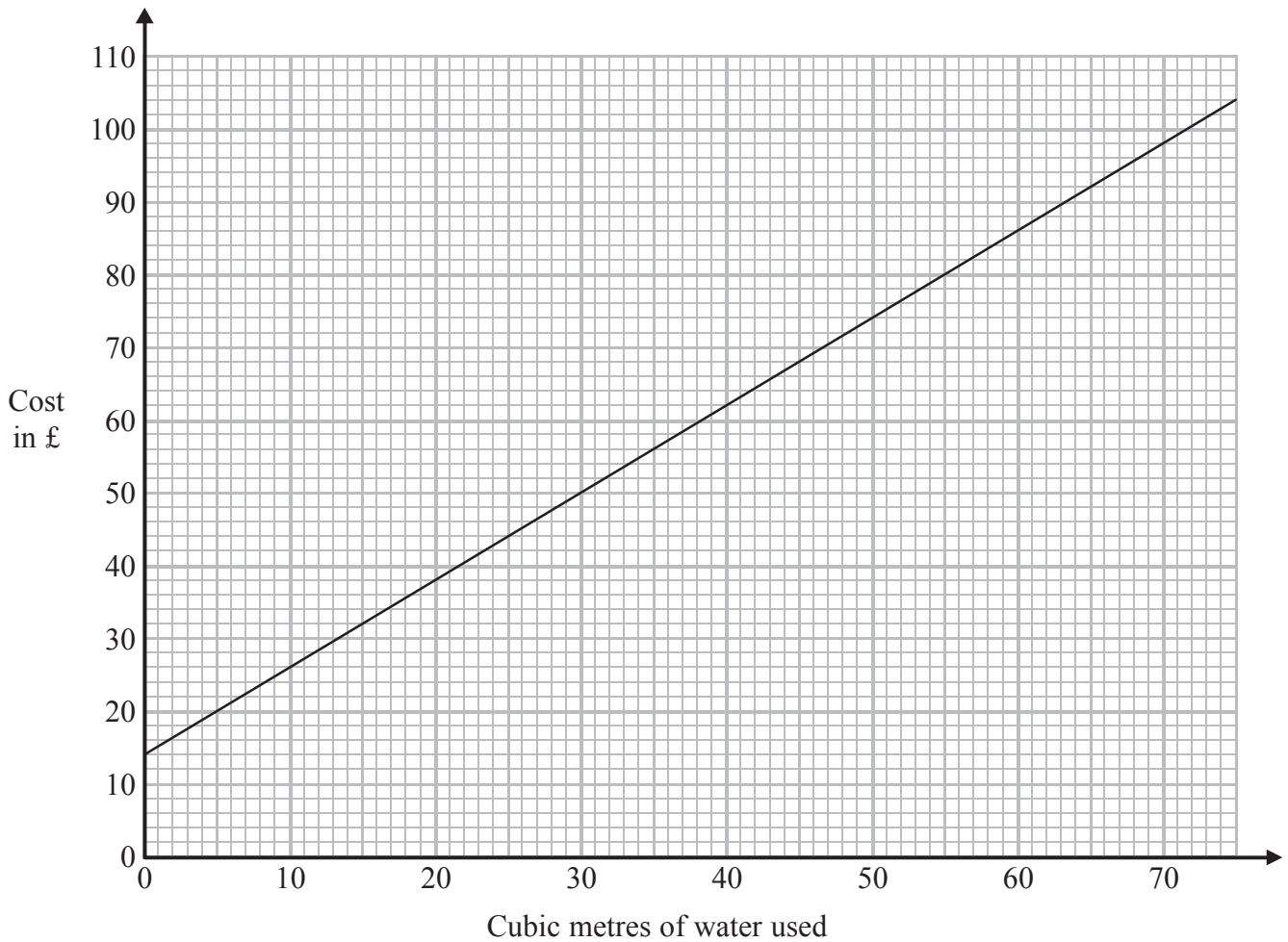
Mr Shah does **not** have a water meter.
He used 50 cubic metres of water.
The cost was £80

Would the cost of the water have been cheaper if Mr Shah had a water meter?
You must explain your answer.

(Total for Question 8 is 2 marks)

9 Seven people entered a singing competition.

Here are the number of points that each of the first six people scored.

$$10 \qquad 8 \qquad 5 \qquad 13 \qquad 18 \qquad 15$$

(a) Work out the range for these six people.

....

(2)

(b) Work out the median for these six people.

....

(2)

The mean for the **seven** people was 12

(c) Work out how many points the seventh person scored.

....

(2)

(Total for Question 9 is 6 marks)

*10 The table shows information about the cost of hiring a cement mixer from two companies.

Cost of hiring cement mixer			
Company	**First day**	**Each extra day**	**Delivery and collection**
Quick Mix	£13.50	£6.90	Free
Speedy Hire	£7.20	£7.20	£5.90

Chris wants to hire a cement mixer for 5 days.
He will hire the cement mixer from either Quick Mix or Speedy Hire.
Chris wants to pay the least amount of money.

Which company should he choose?
You must show all your working.

(Total for Question 10 is 4 marks)

11 The pie chart shows information about how the students in Year 11 get to school.
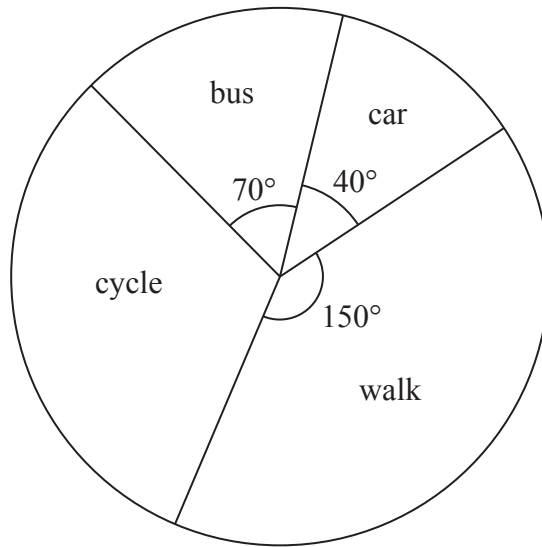
Diagram **NOT** accurately drawn

Mr Morley says, "Less than 10% of students in Year 11 get to school by car".

(a) Is Mr Morley correct?
You must explain your answer.

....

....

....

(2)

50 students in Year 11 cycle to school.

(b) How many students in Year 11 walk to school?

....

(3)

(Total for Question 11 is 5 marks)

12 There are 72 guests staying in a hotel.
They are French or German or Spanish.

The two-way table shows some information about the guests.

	French	German	Spanish	Total
Female	17		14	40
Male		13		32
Total	29		21	72

(a) Complete the two-way table.

(2)

One of these guests is picked at random.

(b) Write down the probability that the guest is female.

....
(1)

One of the male guests is picked at random.

(c) Write down the probability that this male guest is German.

....
(1)

(Total for Question 12 is 4 marks)

*13 140 children will be at a school sports day.
Lily is going to give a cup of orange drink to each of the 140 children.
She is going to put 200 millilitres of orange drink in each cup.

The orange drink is made from orange squash and water.
The orange squash and water are mixed in the ratio 1 : 9 by volume.

Orange squash is sold in bottles containing 750 millilitres.

Work out how many bottles of orange squash Lily needs to buy.
You must show all your working.

(Total for Question 13 is 4 marks)

14 Carlos has a cafe in Clacton.
Each day, he records the maximum temperature in degrees Celsius (°C) in Clacton and the number of hot chocolate drinks sold.

The scatter graph shows this information.
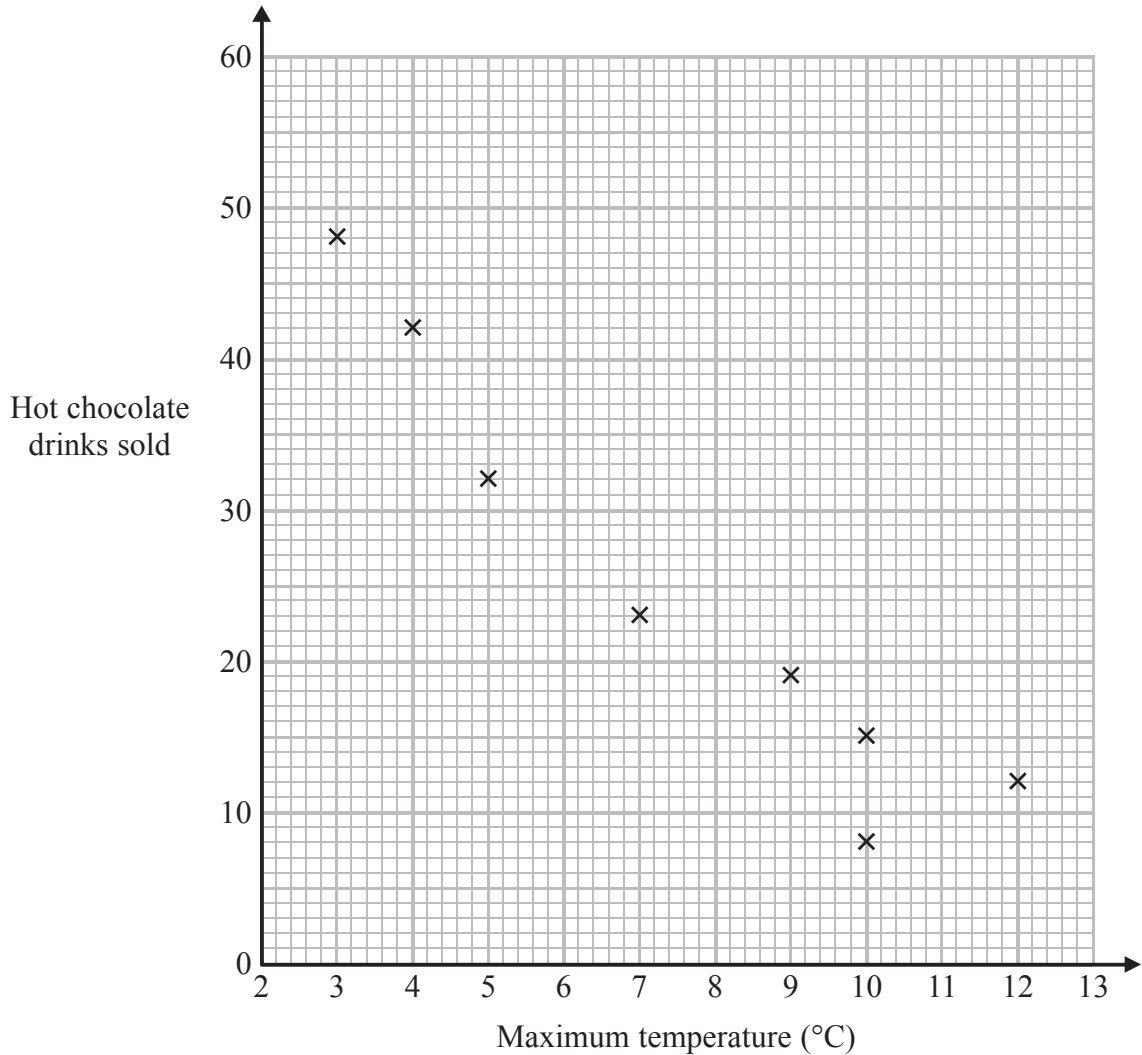
On another day the maximum temperature was 6 °C and 35 hot chocolate drinks were sold.

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the maximum temperature and the number of hot chocolate drinks sold.

....

....

(1)

(c) Draw a line of best fit on the scatter diagram.

(1)

One day the maximum temperature was 8 °C.

(d) Use your line of best fit to estimate how many hot chocolate drinks were sold.

....

(1)

(Total for Question 14 is 4 marks)

15 There are 20 sweets in a box.
x of the sweets are red.
The rest of the sweets are yellow.

Tom takes at random a sweet from the box.

Write down an expression, in terms of x, for the probability that Tom takes a yellow sweet.

....

(Total for Question 15 is 2 marks)

16 Shemoly wants to find out how often people play sport.
She uses this question on a questionnaire.

"Exercise is good for you. How often do you play sport?"

A lot [ ] Sometimes [ ] Never [ ]

(a) Write down **two** things that are wrong with this question.

1 ....

....

....

2 ....

....

....

(2)

(b) Design a better question for Shemoly to use on her questionnaire to find out how often people play sport.

(2)

(Total for Question 16 is 4 marks)

TOTAL FOR PAPER IS 60 MARKS

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