

Write your name here

Surname

Other names

**Pearson**  
**Edexcel GCSE**

Centre Number

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Candidate Number

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# Mathematics B

## Unit 1: Statistics and Probability (Calculator)

**Foundation Tier**

Thursday 26 May 2016 – Morning

**Time: 1 hour 15 minutes**

Paper Reference

**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  $\pi$  button, take the value of  $\pi$  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 ►

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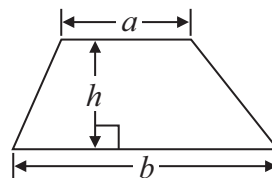
**PEARSON**

## GCSE Mathematics 2MB01

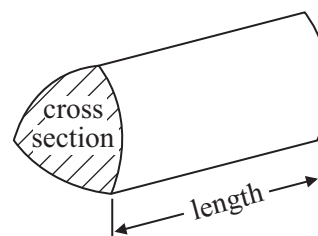
Formulae: Foundation Tier

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

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



$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



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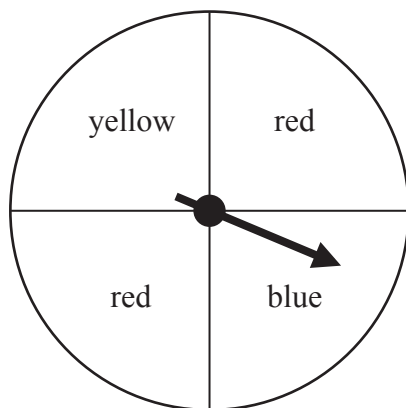


Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

- 1 The diagram shows a fair spinner.



Ben spins the arrow on the spinner once.

- (a) Choose the word below that best describes the likelihood that the arrow will land on red.

impossible      unlikely      evens      likely      certain

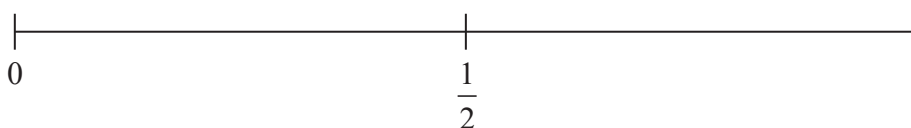
.....  
(1)

- (b) Choose the word below that best describes the likelihood that the arrow will land on green.

impossible      unlikely      evens      likely      certain

.....  
(1)

- (c) On the probability scale, mark with a cross (×) the probability that the arrow will land on blue.


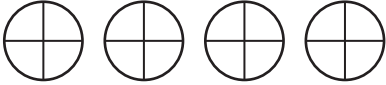




.....  
(1)

(Total for Question 1 is 3 marks)



- 2 The pictogram gives information about the number of points scored by each of four boys in a basketball match.

Wayne	
Jed	
Fred	
Mike	

**Key:**



represents  
4 points

- (a) Write down the number of points that Fred scored.

.....  
(1)

- (b) Work out the total number of points that the boys scored.

.....  
(2)

**(Total for Question 2 is 3 marks)**

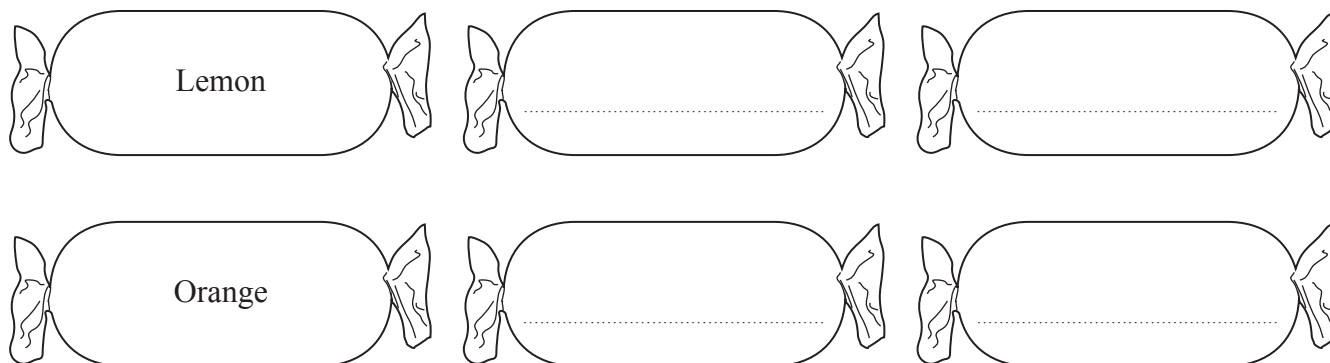
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- 3 There are 6 sweets in a bag.  
The flavour of each sweet is either orange or lemon.  
The flavour of two of the sweets is marked on the sweet.



Jane is going to take at random one of the sweets from the bag.  
She is twice as likely to take an orange sweet as a lemon sweet.

Write a suitable flavour on each of the unmarked sweets.

**(Total for Question 3 is 2 marks)**

- 4 The timetable shows the times of trains between Fratton and Portsmouth Harbour.

Fratton	21 55	21 58	22 08	22 19
Southsea	21 58	22 02	22 11	22 22
Portsmouth Harbour	22 02	22 05	22 16	22 26

John is going to travel by train from Fratton to Portsmouth Harbour to catch a ferry.

The last ferry of the day leaves at 22 15

John must allow 8 minutes to get from the train to the ferry.

What is the time of the latest train from Fratton that John can catch?

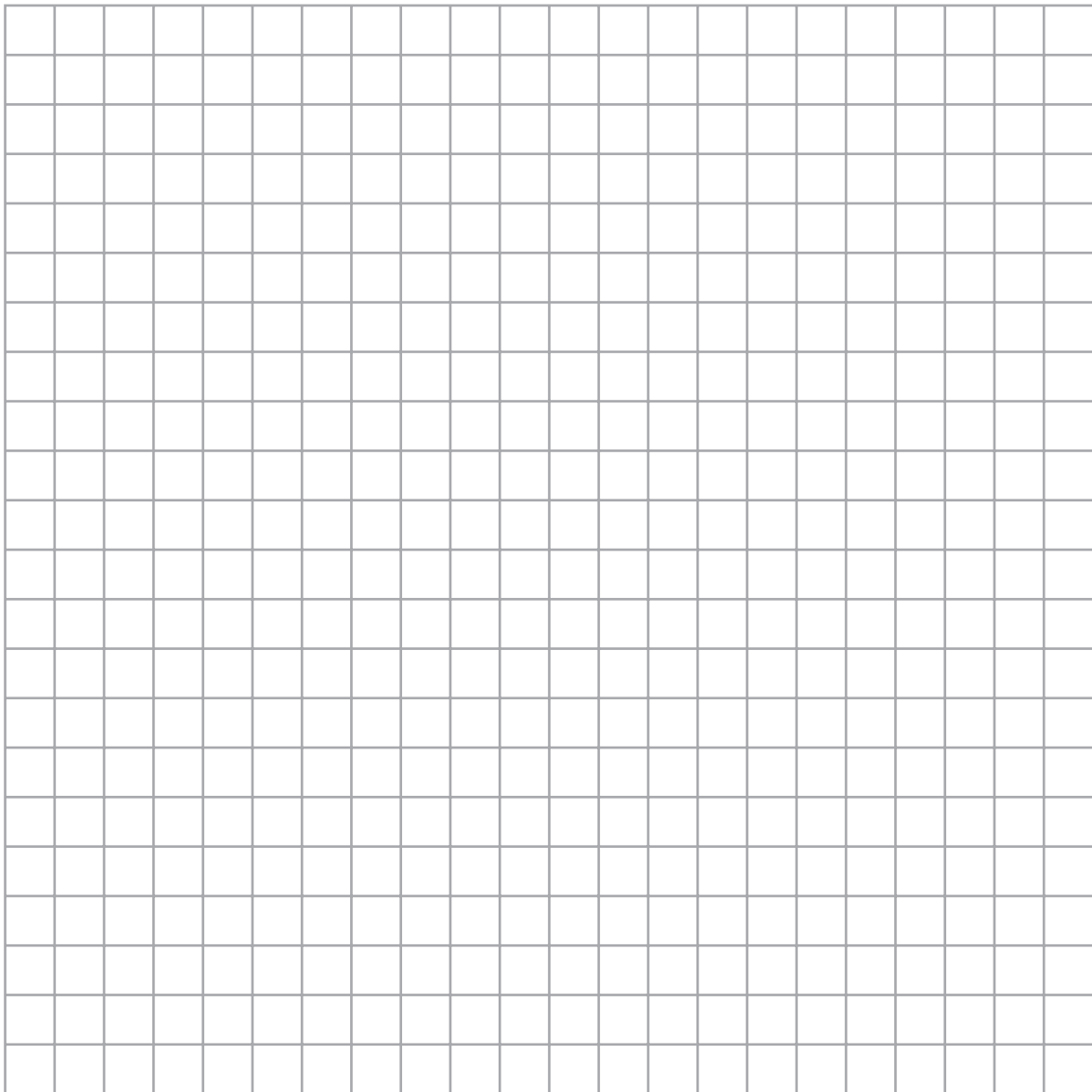
**(Total for Question 4 is 2 marks)**



5 The table shows the temperatures, in °C, in Paris and in Nice on four days.

	Monday	Tuesday	Wednesday	Thursday
Temperature in Paris (°C)	14	15	17	15
Temperature in Nice (°C)	21	20	20	19

\*(a) Show this information in a suitable diagram.



(4)

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(b) Compare the temperatures in Paris and in Nice for the four days.

.....

.....

.....

(1)

**(Total for Question 5 is 5 marks)**

6 Liz is a vet.  
She writes down the type of each animal she treats one morning.

cat	rabbit	cat	dog	rabbit	cat
hamster	dog	dog	cat	rabbit	dog
dog	rabbit	dog	dog	cat	dog

(a) Complete the frequency table.

Type of animal	Tally	Frequency
cat		
hamster		
rabbit		
dog		

(2)

(b) Write down the mode.

.....

(1)

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



7 Sameena has 10 m of ribbon on a reel.  
She cuts 3 pieces of ribbon from the ribbon on the reel.

The lengths of the pieces are

- 41 cm
- 3.7 m
- and 112 cm.

Work out how much ribbon Sameena will have left on the reel.

(Total for Question 7 is 4 marks)

8 A shop sells 4 different flavours of ice cream.

- |            |
|------------|
| vanilla    |
| mint       |
| chocolate  |
| strawberry |

Megan is going to have 2 **different** flavours of ice cream.

Write down all the possible combinations of flavours that Megan could have.

(Total for Question 8 is 2 marks)

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9 This table gives information about five sewing machines.

Type	Number of different stitches	Power of motor (watts)	Needle threader	Cost (£)
Fashion Wise	80	65	Yes	295
Sure Stitch	21	85	Yes	190
Compact	25	51	No	160
Classic	40	30	No	230
Home Style	23	105	Yes	250

(a) How many of these machines have a needle threader?

.....  
(1)

(b) Which type of machine has the motor with the greatest power?

.....  
(1)

Miss Searle wants to buy 16 sewing machines of the same type.  
She must not spend more than £3700

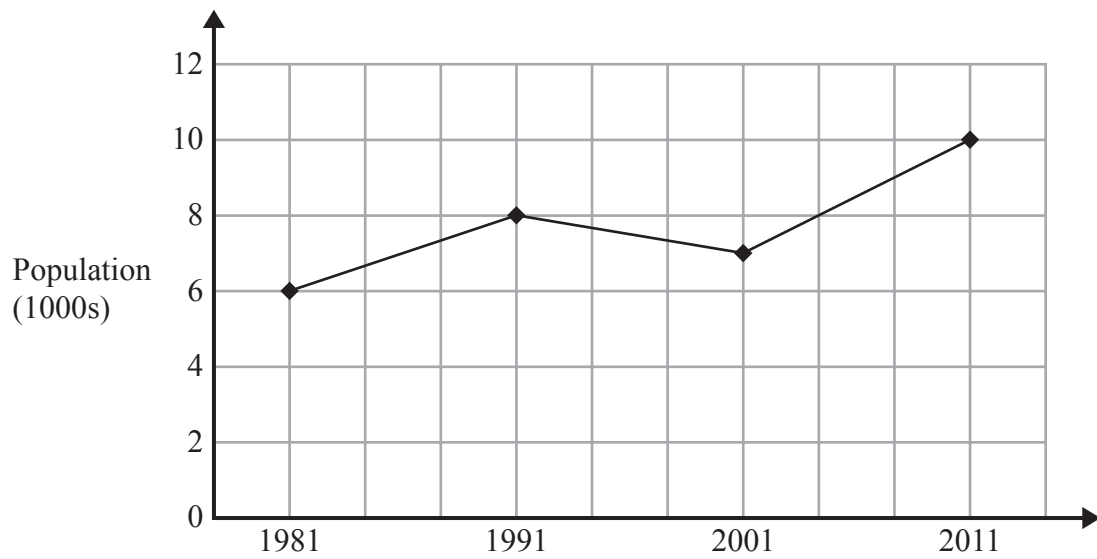
(c) Which types of sewing machine could she choose to buy?  
You must show your working.

.....  
(2)

**(Total for Question 9 is 4 marks)**



10 The graph shows information about the population of a village in thousands.



(a) What was the population of the village in 1991?

.....  
(1)

(b) What was the increase in population from 1981 to 2011?

.....  
(1)

**(Total for Question 10 is 2 marks)**

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11 The stem and leaf diagram shows the number of passengers on each of 24 buses.

0	7 8
1	6 7 8
2	2 6 7 9
3	0 4 5 6 7 7 8
4	0 2 4 5 9
5	1 2 3

**Key:** 1 | 6 means 16 passengers

(a) Work out the range.

.....  
(1)

(b) Work out the median.

.....  
(2)

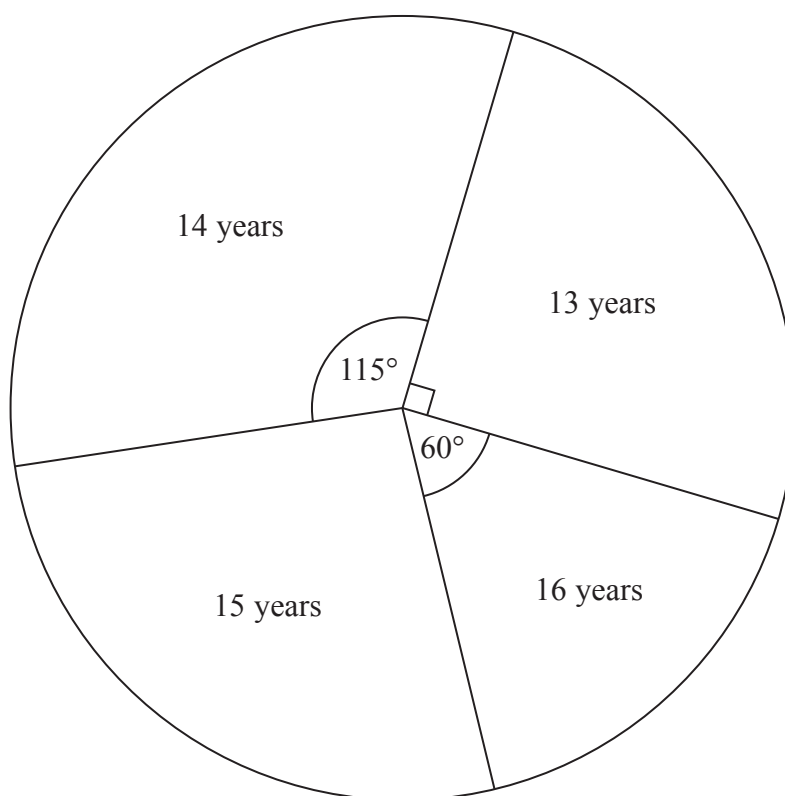
(c) How many buses had less than 20 passengers?

.....  
(1)

**(Total for Question 11 is 4 marks)**



12 The pie chart shows information about the ages of students at an athletics competition.



(a) What fraction of the students have an age of 13 years?

.....  
(1)

23 of the students have an age of 14 years.

(b) Work out how many of the students have an age of 15 years.

.....  
(3)

**(Total for Question 12 is 4 marks)**

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- 13 Andy is organising a trip to a play centre.  
Here is some information about the prices at the centre.

Normal admission prices		Group rate (for 10 or more children)	
Adults	£3.00	£5.50 per child	
Children 1–3 years	£6.25	2 adults free with every 10 children	
Children 4–12 years	£8.25	Other adults charged at £2.50 each	
Children under 1 year	Free		

6 adults and 20 children will go on the trip.  
The children are all 5 years old.

Work out how much Andy will save if he pays the group rate rather than normal admission prices.

You must show all your working.

£.....

(Total for Question 13 is 4 marks)

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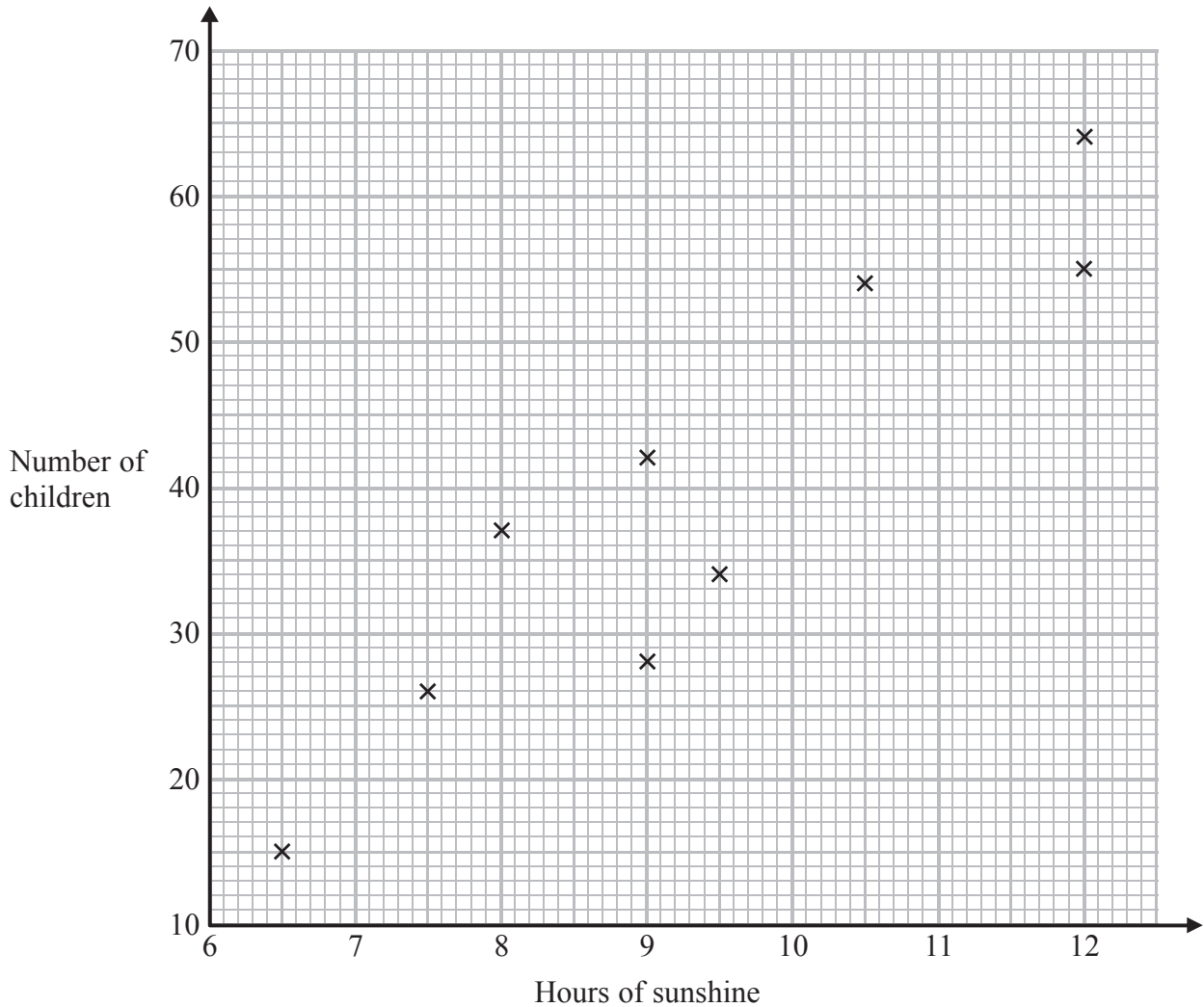
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14 Sally looks after a children's paddling pool in a park.

Each day, Sally records the number of hours of sunshine and the number of children who use the paddling pool.

The scatter graph shows this information.



On another day, there were 8.5 hours of sunshine and 35 children used the pool.

(a) Show this information on the scatter graph.

(1)

(b) Describe the correlation between the number of children who use the paddling pool and the number of hours of sunshine.

(1)



On one day there were 10 hours of sunshine.

(c) Estimate how many children used the paddling pool.

.....  
(2)

**(Total for Question 14 is 4 marks)**

**15** The incomplete two-way table shows information about the nationality of 80 people staying in either a tent or a caravan at a campsite.

	French	British	Dutch	Total
Tent	8		25	44
Caravan		17		
Total			32	80

Complete the two-way table.

**(Total for Question 15 is 3 marks)**



16 Alex is  $x$  cm tall.

Bob is 10 cm taller than Alex.

Cath is 4 cm shorter than Alex.

Write an expression, in terms of  $x$ , for the mean of their heights in centimetres.

.....  
(Total for Question 16 is 3 marks)

17 A factory produces light bulbs.

The probability of a light bulb being faulty is 0.03

One day the factory produces 1800 light bulbs.

Work out an estimate for the number of these light bulbs that are **not** faulty.

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(Total for Question 17 is 3 marks)

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\*18 Seeta is organising a concert to raise money for a school and for a hospital.

A total of  $\frac{1}{20}$  of the money received from selling tickets will be spent on hiring a hall.

The rest of the money received from selling tickets will be given to the school and to the hospital in the ratio 2 : 3

Seeta expects to sell 1000 tickets at £23.50 each.

Work out the amount of money that Seeta expects to give to the school and to the hospital.

You must show all your working.

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(Total for Question 18 is 5 marks)

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TOTAL FOR PAPER IS 60 MARKS



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