

**Non-calculator**

1 The stem and leaf diagram shows the ages of people visiting a library one day.



Key: 2 | 1 means 21

a Work out the range.

.....  
(1 mark)

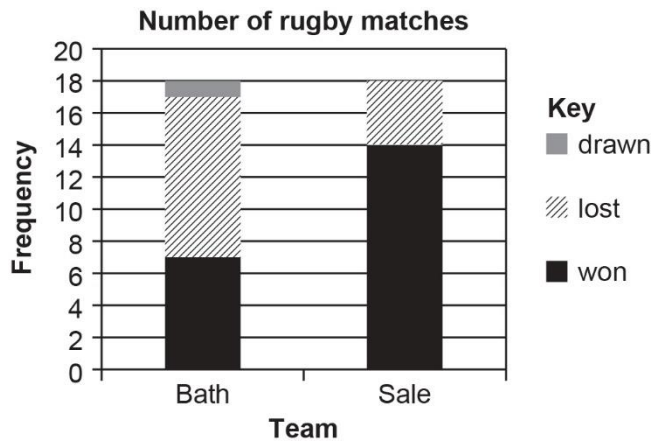
b Find the median.

.....  
(2 marks)

c How many of the visitors were older than the modal age?

.....  
(2 marks)

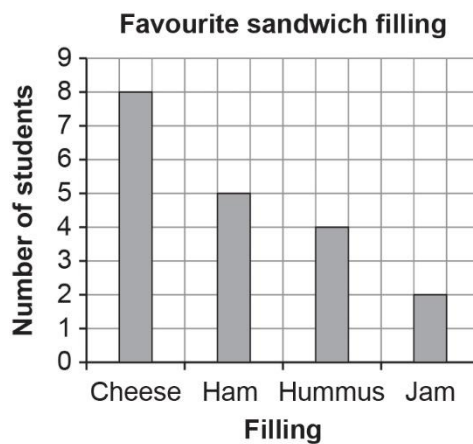
- 2 The compound bar chart shows the number of rugby matches played by Exeter that were won, lost or drawn against two other teams.



Exeter lost more games against Bath than they lost against Sale. How many more games?

.....  
(2 marks)

- 3 The bar chart shows some students' favourite sandwich fillings.



Work out the probability that one of these students, chosen at random, has a favourite filling of cheese or hummus.

.....  
(2 marks)

4 Johan spins a spinner.

He records the colour it lands on.

The frequency table shows his results.

Colour	Frequency	Experimental probability
Red	6	$\frac{6}{20}$
Orange	10	$\frac{10}{20}$
White	4	$\frac{4}{20}$
Total frequency	20	

Amy spins the same spinner.

Here are her results.

Colour	Frequency
Red	8
Orange	15
White	7

a Explain why Amy and Johan would get more accurate experimental probabilities if they combined their results.

.....

.....

(1 mark)

b Calculate the more accurate estimate for the experimental probability of landing on red.

.....

(2 marks)

- 5 Tom and Amy set the alarms on their phones to sound at 6.45 am.

Both alarms sound together at 6.45 am.

Tom's alarm then sounds every 9 minutes.

Amy's alarm then sounds every 12 minutes.

At what time will both alarms next sound together?

.....

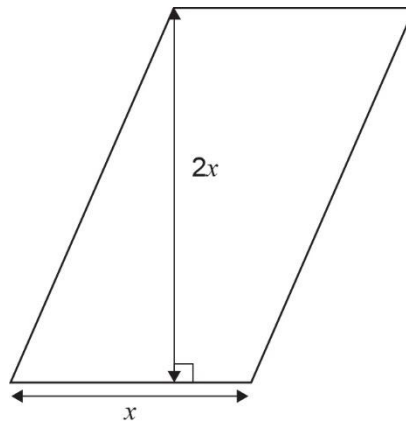
**(3 marks)**

- 6 Write 525 as a product of its prime factors.

.....

**(3 marks)**

7 a Write an expression for the area of this parallelogram.



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

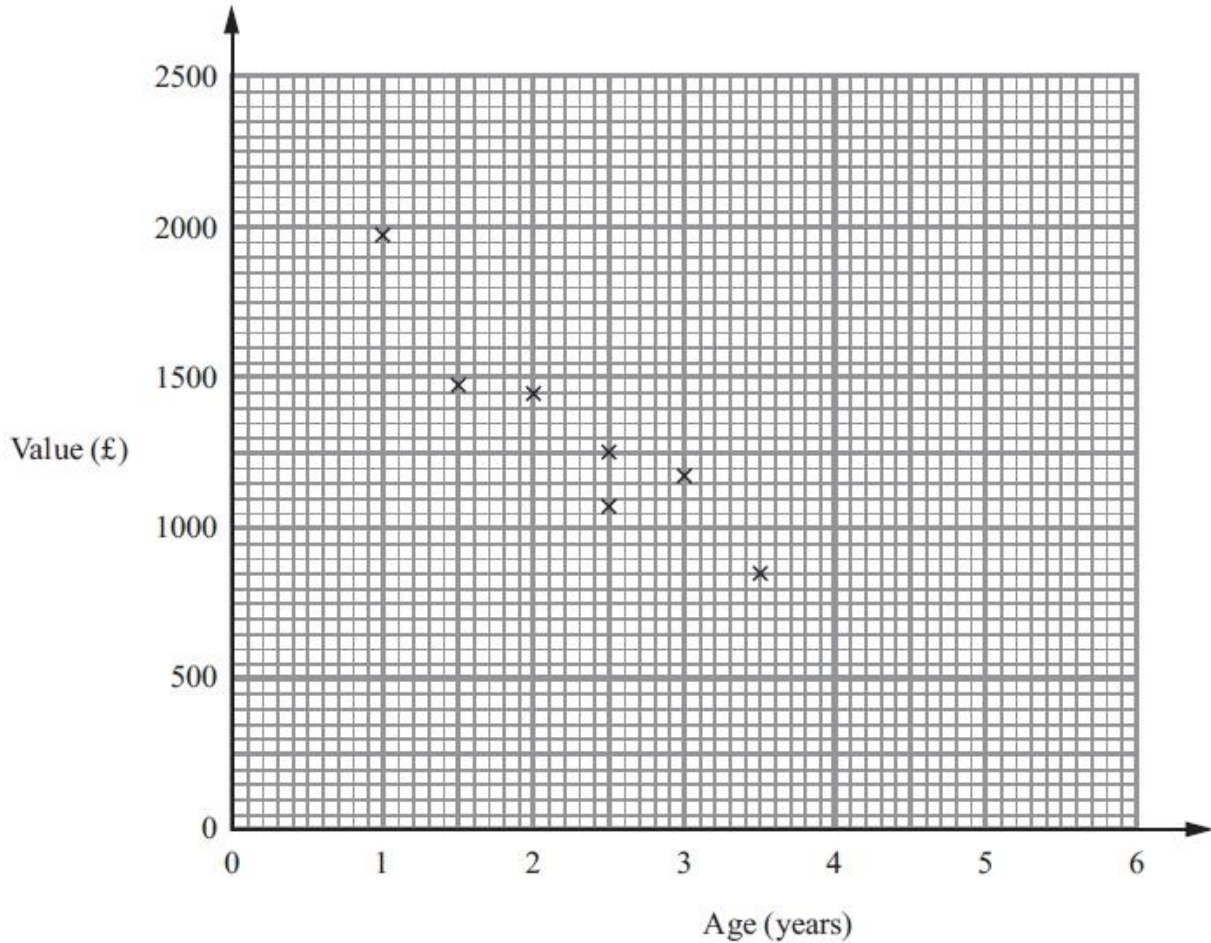
b Use your expression to find the area of the parallelogram when  $x = 4$  cm.

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



**Calculator**

8 The scatter graph shows information about the ages and values of seven Varley motor scooters.



Another Varley motor scooter is 5 years old.  
It has a value of £300

(a) Show this information on the scatter graph. (1)

(b) Describe the relationship between the age and the value of Varley motor scooters.  
.....  
.....

(1)

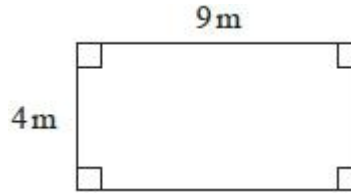
A Varley motor scooter is 4 years old.

(c) Estimate its value.  
  
£ .....

(2)

**(4 marks)**

- 9 Shirley has a garage.  
Here is a plan of her garage floor.



Shirley wants to buy enough paint to cover the garage floor as cheaply as possible. She can buy her paint from Decor U or from Paint Store.

<p><b>Decor U</b> Floor paint</p> <p>£3.70 each tin 1 tin covers <math>12\text{m}^2</math></p>
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<p><b>Paint Store</b> Floor paint</p> <p>£3.00 each tin 1 tin covers <math>10\text{m}^2</math></p>
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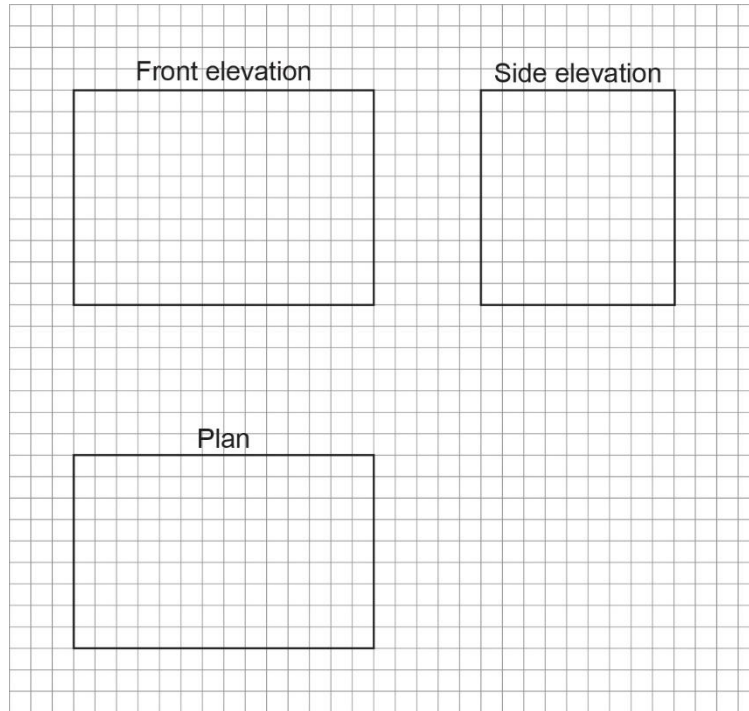
From which of these two shops should Shirley buy her paint?  
You must show all your working.

**(3 marks)**

10 The diagram shows the plan and elevations of a fish tank.

The diagrams are drawn on a 1 cm squared grid.

Each square represents 1cm squared, the diagram is NOT drawn to scale.



a Work out the volume of the fish tank.

.....  
(2 marks)

All five faces of the fish tank are made from glass.

b Calculate the area of glass used to make the fish tank.

.....  
(3 marks)



11 The diagram shows a trapezium PQRS.

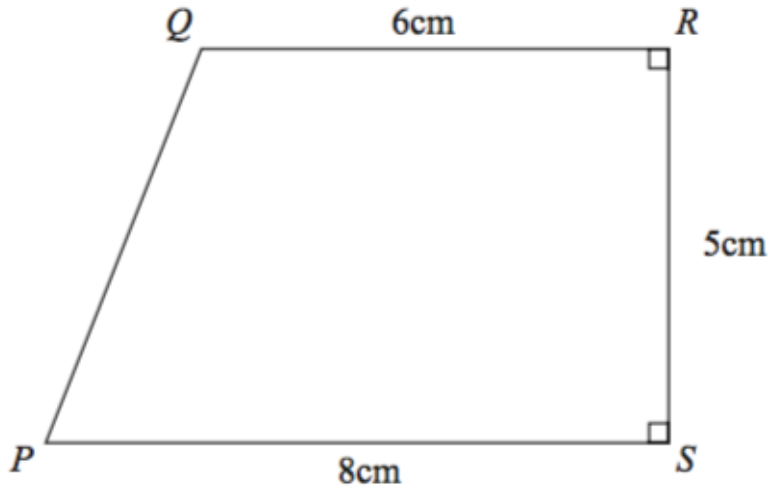


Diagram NOT accurately drawn

Calculate the area of the trapezium PQRS.

.....  $cm^2$

**(2 marks)**

12 A cuboid has width 10 cm and height 4 cm. It is filled with water.

The water from the cuboid is then poured into an empty cube of side length 8 cm.

The cube is three quarters full with water.

Calculate the length of the cuboid.

.....cm

**(3 marks)**

13 A company is replacing an old machine.

The new machine costs £67 082

Four staff will be trained to use the new machine.

The training course costs £249 per person.

The company will sell the old machine for £17 500

Work out if replacing the old machine will cost the company more than £50 000

Show your working clearly.

.....  
(3 marks)

14 A fair spinner has 20 sections.

Each section is marked with a number greater than 0

$P(\text{even number}) = 0.7$

How many odd numbers are there on the spinner?

.....  
(2 marks)

15

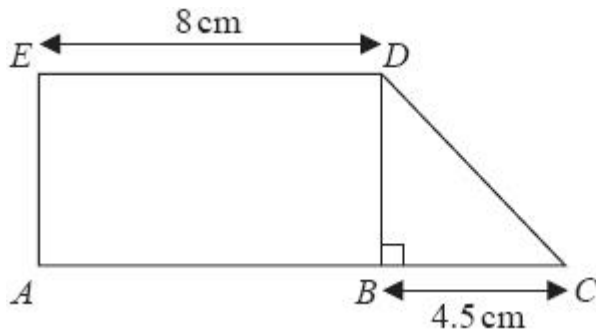


Diagram NOT  
accurately drawn

*ABDE* is a rectangle.

*ED* is 8cm.

*BDC* is a right-angled triangle.

*BC* is 4.5cm.

*ABC* is a straight line.

The area of the rectangle *ABDE* is  $40\text{cm}^2$ .

Work out the area of the triangle *BDC*.

..... $\text{cm}^2$

**(3 marks)**