Write your name here

Surname		Other names

**Pearson
Edexcel GCSE**

Centre Number

Candidate Number

Applications of Mathematics
Unit 1: Applications 1
For Approved Pilot Centres ONLY

Foundation Tier

| Wednesday 5 November 2014 – Morning
Time: 1 hour 45 minutes | Paper Reference
5AM1F/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 100
- 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.
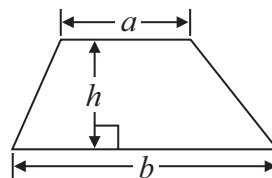
Turn over ▶

P 4 4 5 7 6 A 0 1 2 8

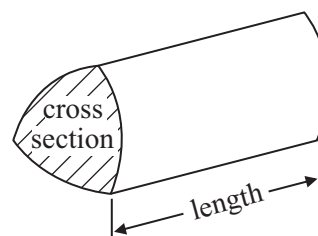**PEARSON**

GCSE Mathematics 2AM01

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

P 4 4 5 7 6 A 0 2 2 8

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1   17 450 people watched a cycle race.

(a) Write 17 450 to the nearest thousand.

....
(1)

There were 148 people in the cycle race.

(b) Write 148 to the nearest ten.

....
(1)

Bradley's average speed was 45.76 kilometres per hour.

(c) Write 45.76 to one decimal place.

....
(1)

(Total for Question 1 is 3 marks)

2 Barry and Sylvie play darts.
Barry throws three darts at the dartboard.

He scores

            50   19   8

(a) Work out Barry's total score.

....
(1)

Sylvie throws three darts at the dartboard.
Her total score is 89

Sylvie subtracts her score from 301

(b) Work out 301 − 89

....
(1)

Barry throws three more darts at the dartboard.

He scores less than 12 with each dart.
His total score is 25

(c) Write down three whole numbers less than 12 that add up to 25

....
(2)

(Total for Question 2 is 4 marks)

3 (a) Here are the points that five people scored in a competition.

Name	Amy	Beth	Cathy	Danni	Ellie
Number of points scored	2750	3520	729	4992	1299

Put the number of points scored in order of size.
Start with the smallest number of points.

....

(1)

(b) Mr Jones gave four of his students a test.
The total number of marks for the test is 80

Jamie got $\dfrac{1}{2}$ of the marks.

Andy got $\dfrac{2}{5}$ of the marks.

Robbie got $\dfrac{3}{4}$ of the marks.

Davy got $\dfrac{3}{5}$ of the marks.

Write the fractions in order of size.
Start with the smallest fraction.

....
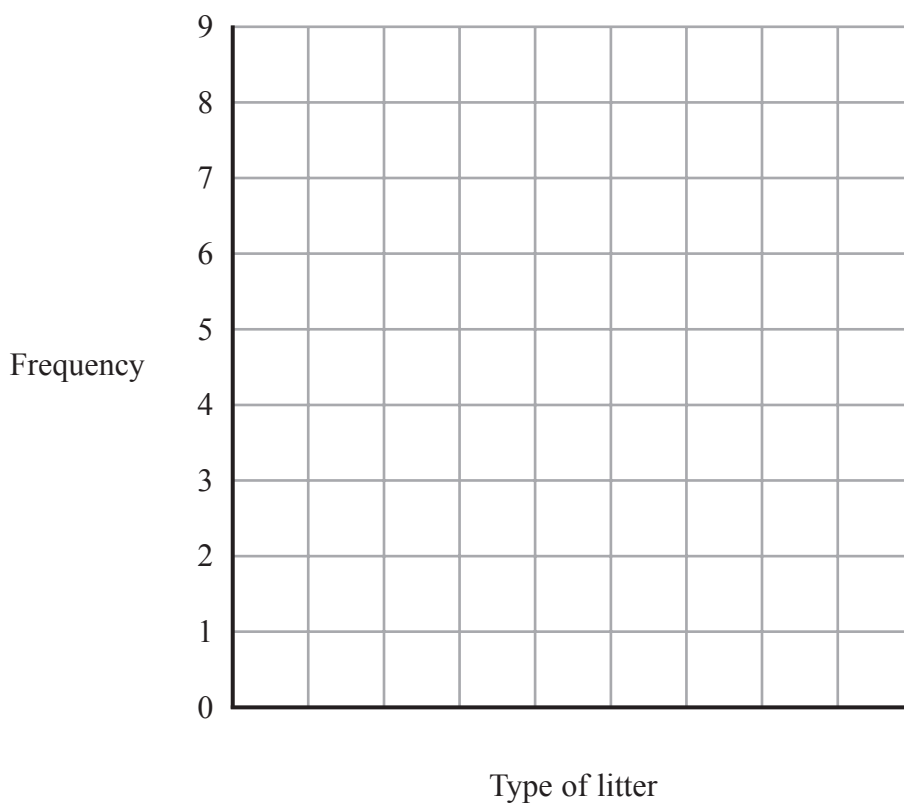
(3)

(Total for Question 3 is 4 marks)

Turn over ▶

4 Rina carried out a survey about the type of litter dropped outside her house.

Here are her results.

Type of litter	Frequency
Crisp packet	5
Chewing gum	4
Choc bar wrapper	7
Fast food box	3

(a) On the grid, draw a bar chart to show this information.

Frequency

Type of litter

(3)

(b) Write down the type of litter that is the mode.

....

(1)

(Total for Question 4 is 4 marks)

P 4 4 5 7 6 A 0 6 2 8

5 (a) Write down an appropriate unit for measuring

   (i) the distance from Birmingham to Glasgow,

   ....

   (ii) the weight of a bag of potatoes.

   ....

   (2)

   (b) Write down a sensible estimate for

   (i) the height of a normal door,

   ....

   (ii) the amount of liquid in a can of cola.

   ....

   (2)

   (Total for Question 5 is 4 marks)

*6 Simon goes to a car boot sale.

   He buys
   >   4 cups and saucers for a total of £15.95
   >   4 plates for £1.35 each
   >   6 egg cups for a total of £7.20

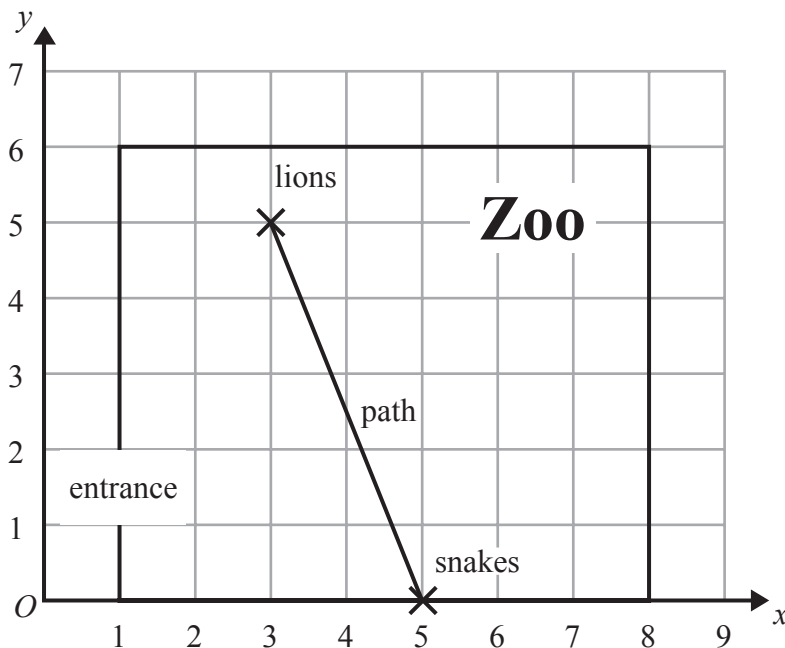   Simon sells all the items he buys for a total of £45.75

   Does he make a profit or a loss?
   You must show all your working.

   (Total for Question 6 is 4 marks)

7 Here is a map drawn on a coordinate grid.

Su Ling uses this map to find her way around the Zoo.

(a) Write down the coordinates of the cross marking

   (i) the lions,

(........................ , ...)

   (ii) the snakes.

(........................ , ...)

(2)

The elephants are at (7, 3)

(b) Mark with a cross (×) the position of the elephants.

(1)

There is a path from the lions to the snakes.

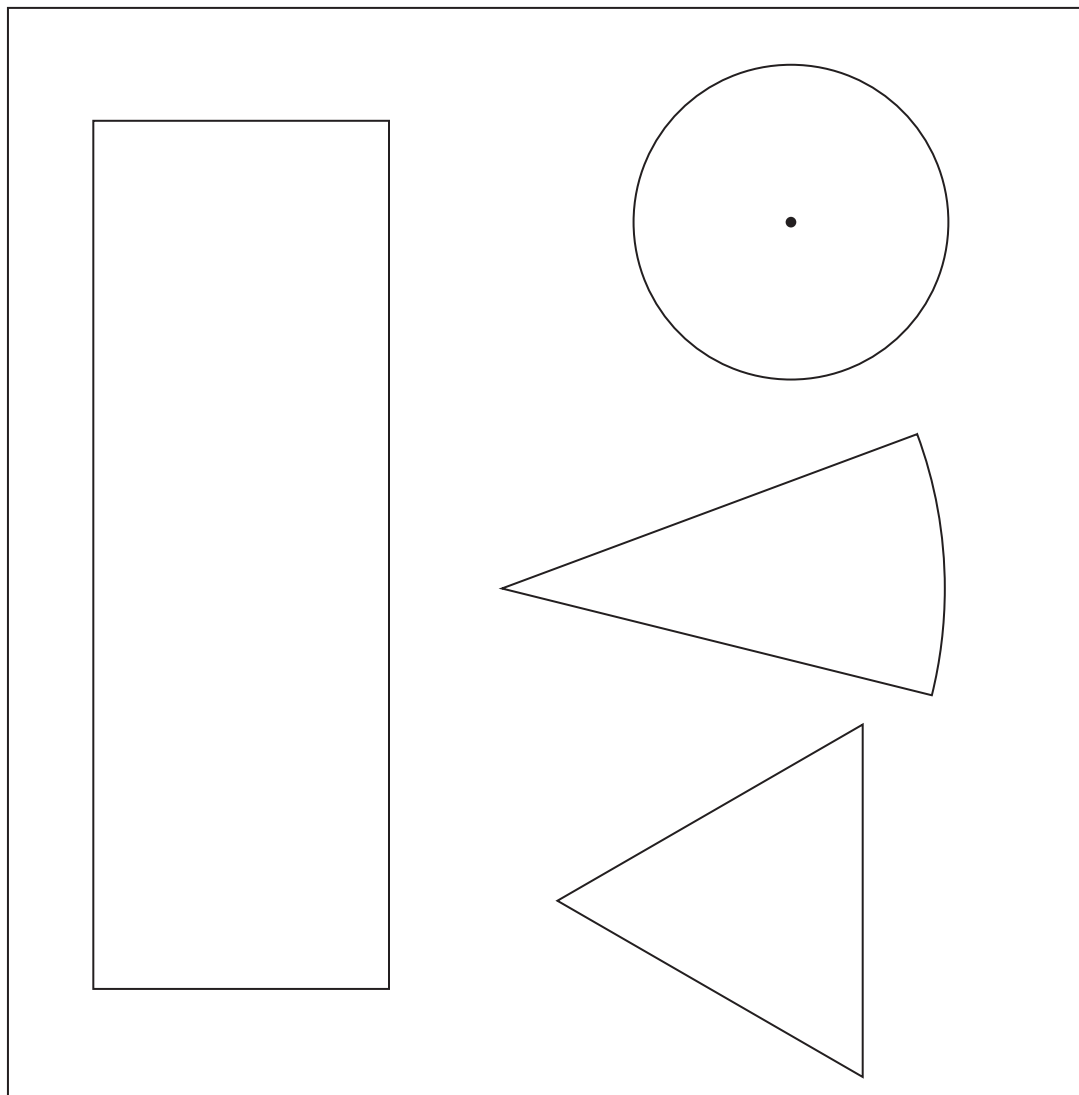(c) Find the coordinates of the midpoint of the path.

(........................ , ...)

(2)

(Total for Question 7 is 5 marks)

8 Here is a diagram of a sports field.

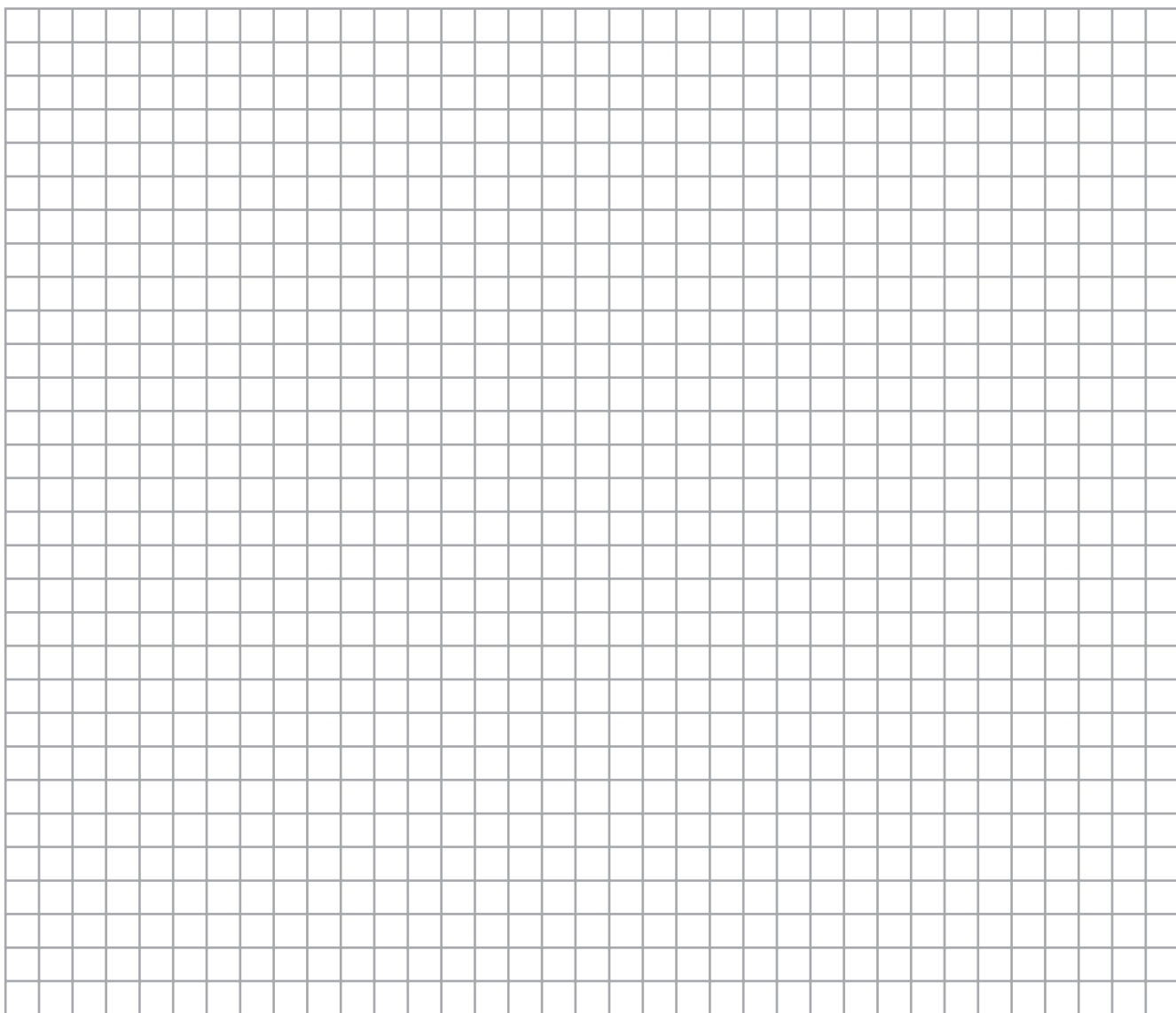(i) Draw a diameter in the circle.

(ii) Label the sector with an S.

(Total for Question 8 is 2 marks)

*9 The table shows the average midday temperatures, in °C, in London and in Rome one summer.

	Apr	May	Jun	July	Aug	Sept
London	18	20	22	25	23	20
Rome	16	22	22	28	30	25

Show this information in a suitable chart or diagram.

(Total for Question 9 is 4 marks)

10 There are boat trips from Dedham to Flatford and from Flatford to Dedham.

An adult ticket for a boat trip costs £5.50
A child ticket for a boat trip costs £2.75

The table gives information about the leaving times of the boat trips every day.
The table also gives information about the tickets sold one day last week.

Trip number	Leaving time	Trip	Adult tickets sold	Child tickets sold
1	10 15	Dedham to Flatford	4	0
2	11 00	Flatford to Dedham	6	2
3	11 45	Dedham to Flatford	5	4
4	12 30	Flatford to Dedham	8	2
5	13 15	Dedham to Flatford	10	0
6	14 00	Flatford to Dedham	6	6
7	14 45	Dedham to Flatford	4	8
8	15 30	Flatford to Dedham	8	4

(a) Work out the total cost of the tickets sold for Trip number 1 and Trip number 2

£ ....

(4)

P44576A01228

Josh is planning a day out next week.
He is going to arrive at Flatford at 10 30

Josh will
- have a boat trip to Dedham,
- have lunch in Dedham,
- have a boat trip back to Flatford.

Each boat trip takes 30 minutes.
Josh wants to have one and half hours for lunch in Dedham.

*(b) Plan a schedule for Josh.
You must give the leaving times of the boat trips and the times the boats arrive.

(4)

(Total for Question 10 is 8 marks)

P 4 4 5 7 6 A 0 1 3 2 8

11 The diagram shows part of the frame of a cycle.
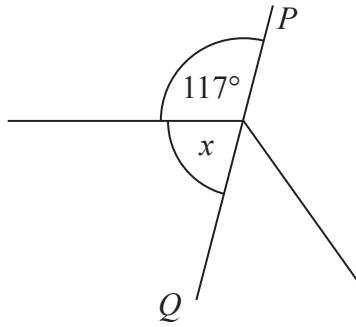
Diagram **NOT** accurately drawn

PQ is a straight line.

(a) (i) Work out the size of the angle marked *x*.

.... °

(ii) Give a reason for your answer.

....

(2)

This diagram shows a different part of the frame of the cycle.
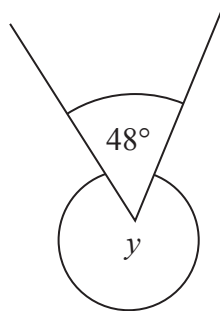
Diagram **NOT** accurately drawn

(b) (i) Work out the size of the angle marked *y*.

.... °

(ii) Give a reason for your answer.

....

(2)

(Total for Question 11 is 4 marks)

12 Here are the amounts of money earned each week by 10 workers in a company.

£150   £100   £200   £100   £300   £100   £400   £300   £150   £200

(a) Work out the mean.

£ ....
(2)

(b) Work out the median.

£ ....
(2)

(c) Work out the mode.

£ ....
(1)

(d) Work out the range.

£ ....
(2)

(Total for Question 12 is 7 marks)

13 Write down the reading shown on each of these scales.

(i)

150

100   200

°C

........................°C

(ii)

500
400
300
200
100
0

Height in feet

........................feet

(iii)

m*l*

30

20

10
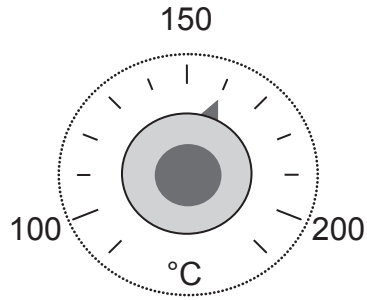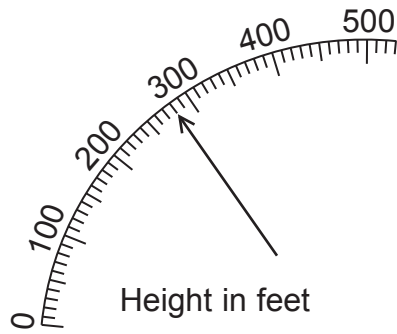
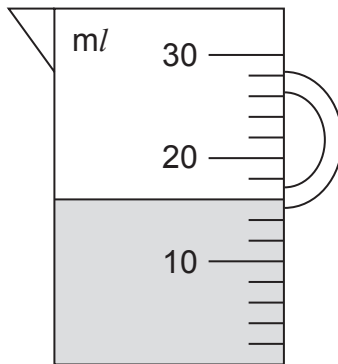........................m*l*

(Total for Question 13 is 3 marks)

14 Jeremy invests £300 for two years at 4% simple interest each year.

(a) Work out the amount of interest he will get at the end of two years.

£ ....
(3)

Jeremy buys a TV.
He pays £450 plus 20% VAT.

(b) Work out the VAT.

£ ....
(2)

(Total for Question 14 is 5 marks)

15 The table shows information about the pay of workers in a factory.

Age of worker	Pay per hour
Less than 20 years	£5.03
20 years or older	£6.31

A worker aged A years works for H hours.
The worker is paid P pounds.

Complete the flow chart for working out the pay for any worker.

```
        ( Start )
           |
           v
     / Input A /
           |
           v
     / Input H /
```
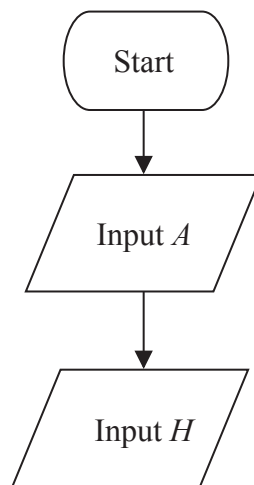
(Total for Question 15 is 4 marks)

16 Here is a rectangular sheet of metal.
A square hole is cut out of the metal.

$3x + 5$

Diagram **NOT**
accurately drawn

$x + 6$

$x + 6$

$2x + 5$
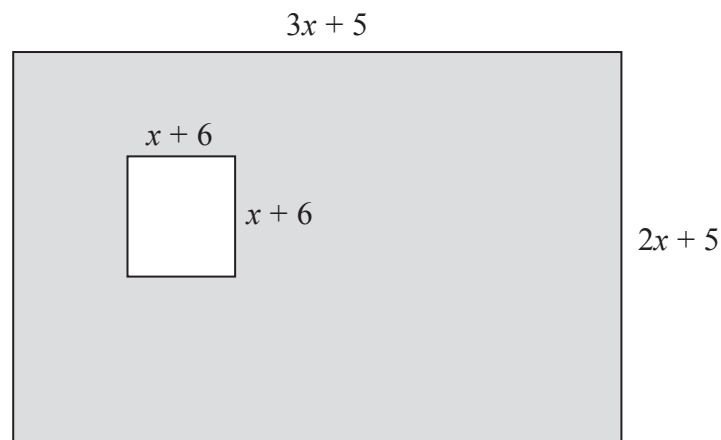
The length of the rectangle is $3x + 5$
The width of the rectangle is $2x + 5$
The square has sides of length $x + 6$
All measurements are in centimetres.

The perimeter of the square hole is $\dfrac{3}{5}$ of the perimeter of the rectangle.

Work out the length of a side of the square hole.

.........................cm

(Total for Question 16 is 5 marks)

17 Jane has to work out the cross-sectional areas of some circular containers.

She uses the expression $\dfrac{C^2}{4\pi}$ where C is the circumference of the container.

Work out the cross-sectional area when C is 65 cm.

....................................cm^2

(Total for Question 17 is 2 marks)

18 Julie is going on holiday to France.

She changes £400 into euros (€).
The exchange rate is £1 = €1.20

(a) How many euros does Julie get?

€ ....
(2)

Julie brings back 150 euros (€) from her holiday in France.
She changes the euros into dollars ($).

The exchange rates are
$$£1 = €1.20$$
$$£1 = \$1.56$$

(b) How many dollars does Julie get?

$ ....
(3)

(Total for Question 18 is 5 marks)

19 The diagram shows a photograph of a church in a frame.

Diagram **NOT** accurately drawn

The photograph has a length of 10 inches and a width of 8 inches.
The frame has a length of 12 inches and a width of 10 inches.

The frame is made from four rectangular pieces of wood.
The frame is shown shaded in the diagram.

Work out the area of the frame.

.........................square inches

(Total for Question 19 is 4 marks)

P44576A02228

20 Ronni owns a shop.
She sells plain crisps, salt & vinegar crisps and barbecue crisps.

On Monday evening Ronni has these packets of crisps left.

        24 packets of plain crisps
        54 packets of salt & vinegar crisps
        18 packets of barbecue crisps

On Tuesday morning these boxes of crisps are delivered to the shop.

        5 boxes of plain crisps
        4 boxes of salt & vinegar crisps
        3 boxes of barbecue crisps

There are 48 packets of crisps in each box.

Ronni sells equal numbers of packets of plain crisps, salt & vinegar crisps and barbecue crisps.
Ronni now has no packets of barbecue crisps left.

How many packets of plain crisps and how many packets of salt & vinegar crisps does
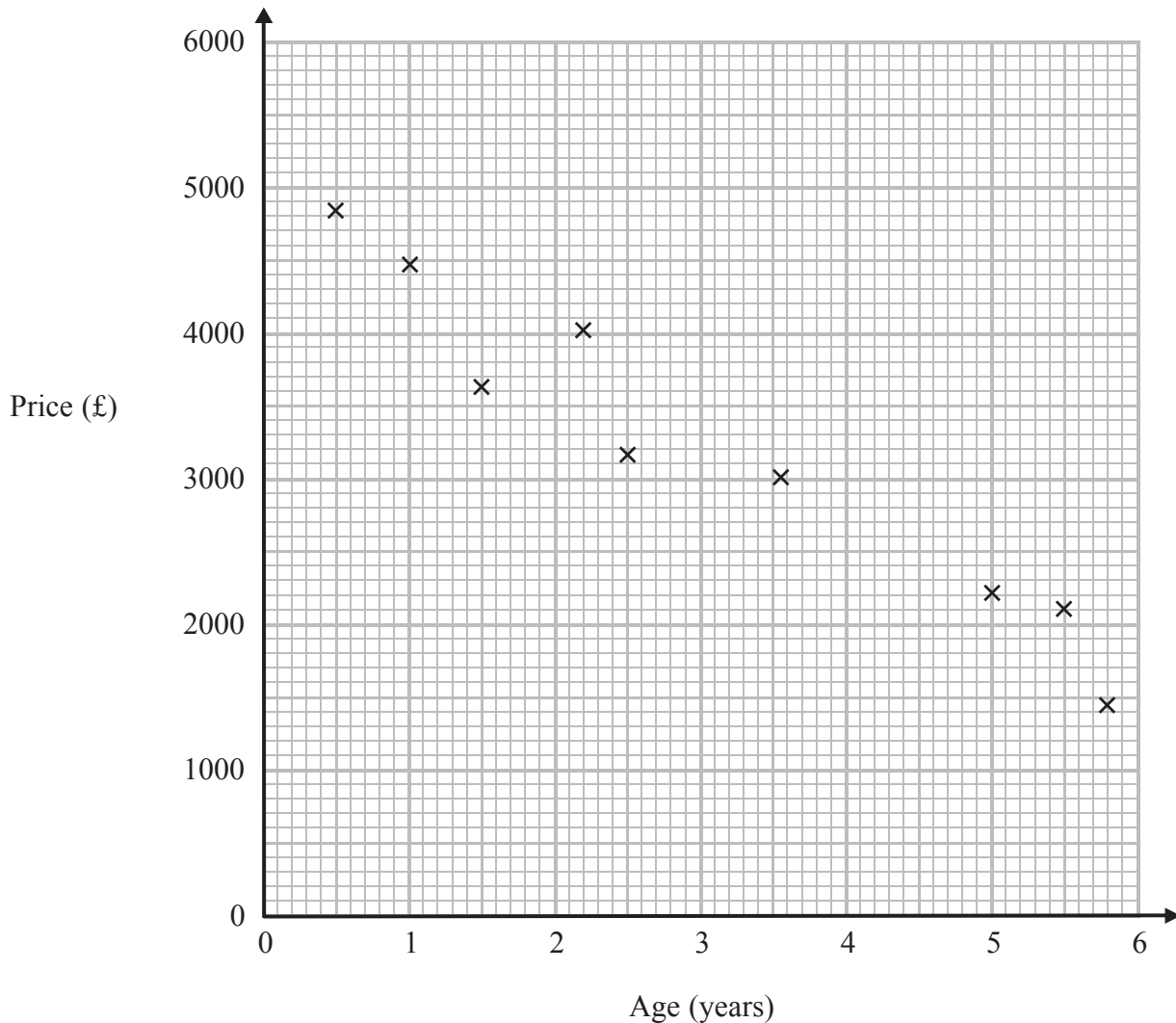Ronni have left?

Plain .... packets

Salt & vinegar .... packets

(Total for Question 20 is 4 marks)

21 Jason sells cars.
Last month he sold 9 cars.
All the cars he sold were the same make and model.

The scatter graph shows the ages and prices of the cars.

Jason also sold a 4 year old car of the same make and model for £2300
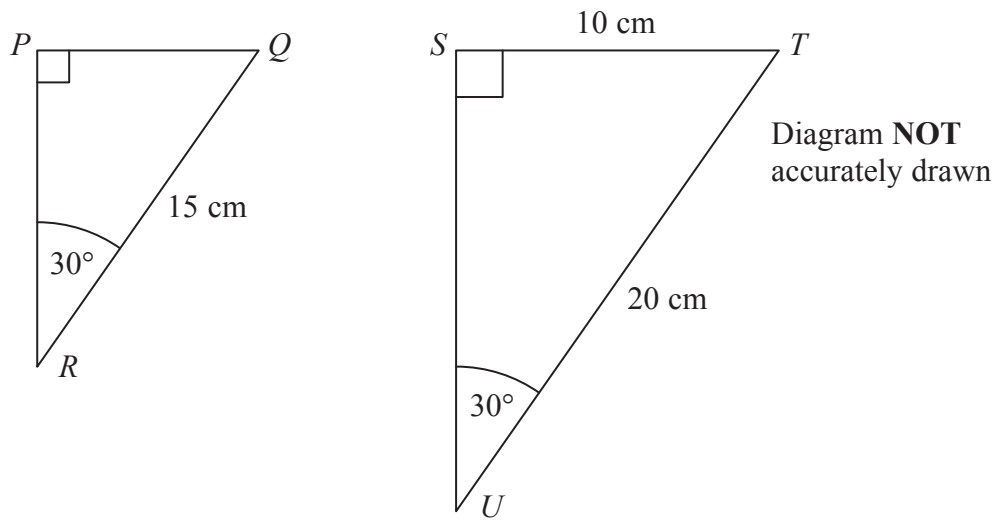
(a) Show this information on the scatter graph.

(1)

A car of the same make and model is 3 years old.

(b) Estimate the price of this car.

£ ....

(2)

(Total for Question 21 is 3 marks)

22 Here is a diagram of two shelf supports.

Diagram **NOT** accurately drawn

Triangle *PQR* is similar to triangle *STU*.

*(a) Why?

....

....

(1)

(b) Work out the length of *PQ*.
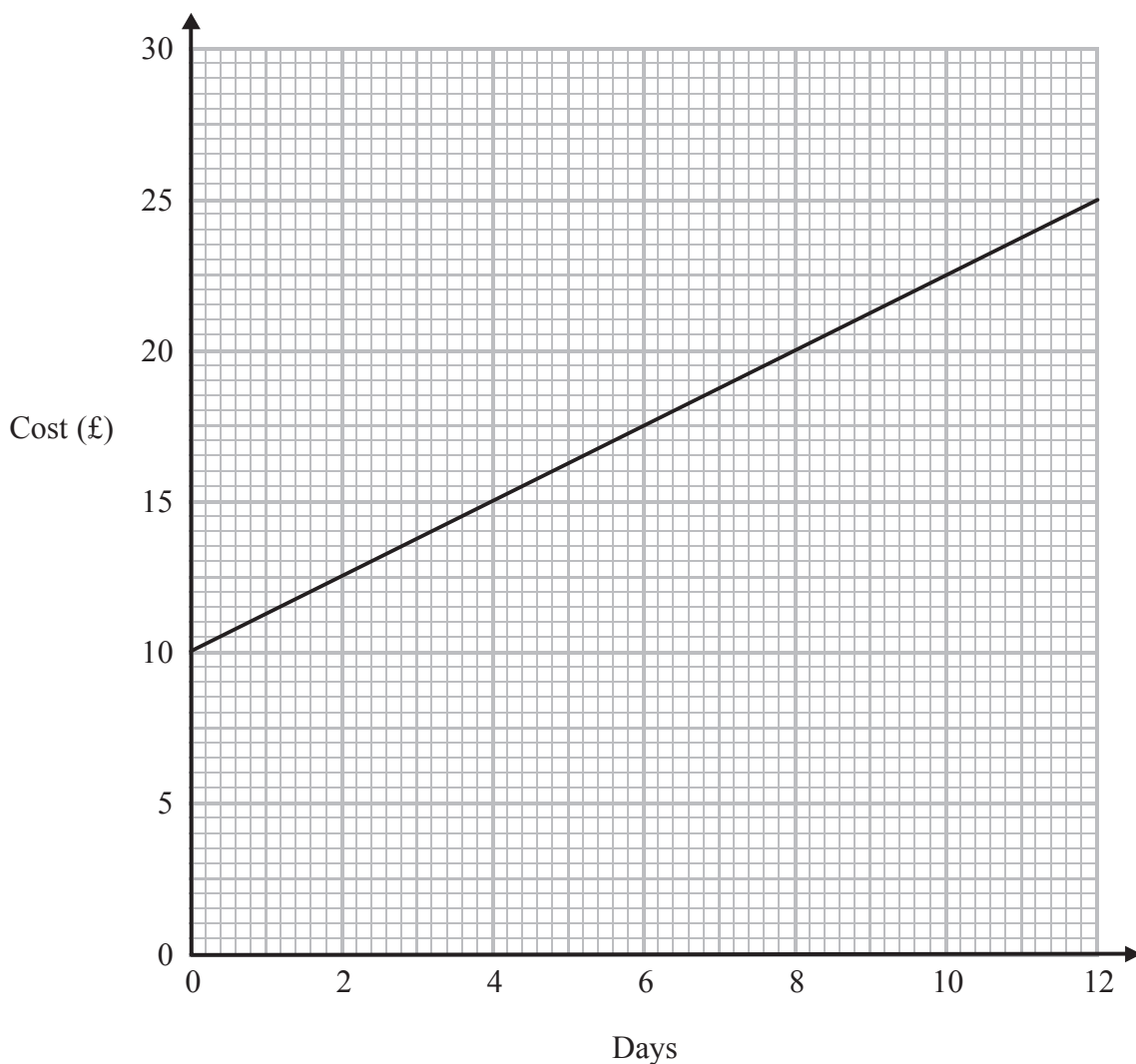
.......................cm

(2)

(Total for Question 22 is 3 marks)

23 Salome hires a chainsaw from the **Saws are Us** company.

This graph shows the cost of hiring a chainsaw from **Saws are Us** for up to 12 days.

Cost (£)

Days

(a) Find the cost of hiring the chainsaw for 6 days from **Saws are Us**.

£ ....
(1)

The cost of hiring a chainsaw from **Saws are Us** is £10 plus a daily rate.

(b) Work out the daily rate.

£ ....
(1)

Salome wants to compare the cost of hiring a chainsaw from **Saws are Us** and from **Saws to You.**

Saws to You charge £3 for each day of hire.

Salome hires chainsaws for different periods of time.
She wants to use the cheaper company.

(c) Which of these two companies is the cheaper to hire the chainsaw from?
You must show your working and explain your answer.

....

(3)

(Total for Question 23 is 5 marks)

24 Chris has two children, Beth and Amy.
Beth is 10 years older than Amy.

Chris says,

"I am twice as old as the sum of Beth's age and Amy's age."

Chris is 40 years old.

How old is Amy?

.........................years old

(Total for Question 24 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS