Please check the examination details below before entering your candidate information

Candidate surname | Other names

Pearson Edexcel
International GCSE

Centre Number | Candidate Number

Tuesday 15 January 2019

Morning (Time: 2 hours) | Paper Reference **4MA0/2FR**

Mathematics A

Paper 2FR
Foundation Tier

You must have:
Ruler graduated in centimetres and millimetres, protractor, 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.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
  Anything you write on the formulae page will gain NO credit.

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.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.
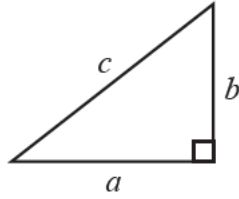
Turn over ▶

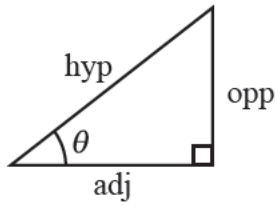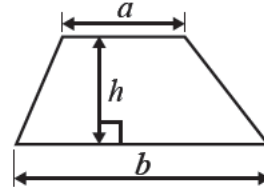P 5 5 9 4 1 A 0 1 2 8

Pearson

International GCSE MATHEMATICS

FORMULAE SHEET – FOUNDATION TIER

Pythagoras'
Theorem
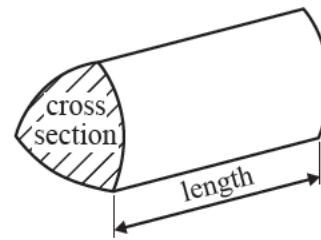$a^2 + b^2 = c^2$

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

adj = hyp $\times \cos \theta$
opp = hyp $\times \sin \theta$
opp = adj $\times \tan \theta$

Volume of prism = area of cross section $\times$ length
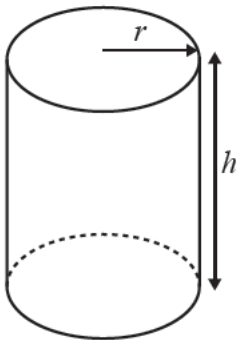
or $\sin \theta = \dfrac{\text{opp}}{\text{hyp}}$

$\cos \theta = \dfrac{\text{adj}}{\text{hyp}}$

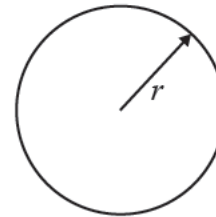$\tan \theta = \dfrac{\text{opp}}{\text{adj}}$

Circumference of circle $= 2\pi r$

Area of circle $= \pi r^2$

Volume of cylinder $= \pi r^2 h$

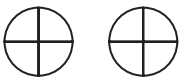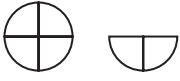Curved surface area
of cylinder $= 2\pi r h$

Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The pictogram gives information about the number of pizzas sold from a shop on Monday, on Tuesday, on Wednesday and on Thursday one week.

Monday	⊕ ⊕
Tuesday	⊕ ⊖
Wednesday	◔
Thursday	⊕
Friday	

Key:	⊕	represents 12 pizzas

(a) Write down the number of pizzas sold from the shop on Monday.

(1)

(b) Write down the number of pizzas sold from the shop on Wednesday.
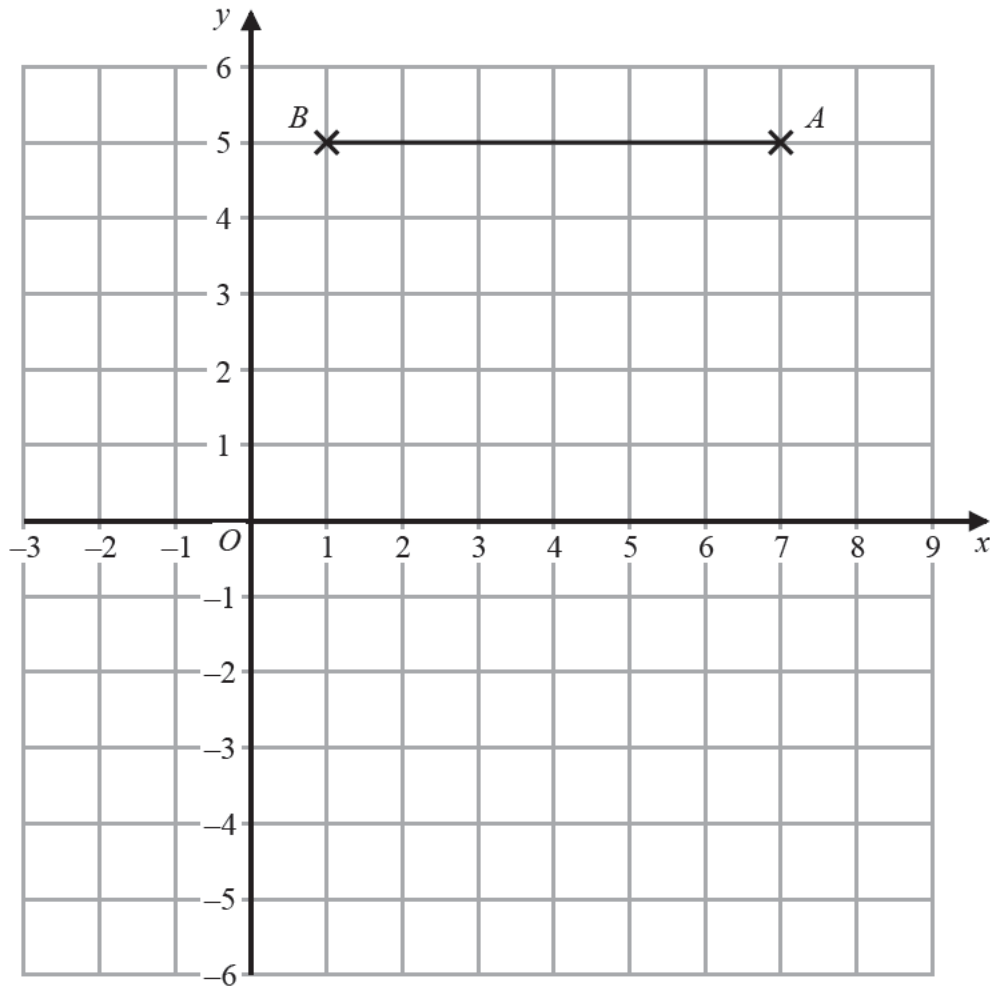
(1)

30 pizzas were sold from the shop on Friday.

(c) Show this information on the pictogram.

(1)

(Total for Question 1 is 3 marks)

Turn over ▶

P 5 5 9 4 1 A 0 3 2 8

2 The line *BA* has been drawn on a grid.

(a) Write down the coordinates of the point *A*.

(,   )

(1)

(b) On the grid, mark with a cross (✕) the point with coordinates (–1, –3)
   Label the point *C*.

(1)

D is the point on the grid so that *ABCD* is a parallelogram.

(c) Find the coordinates of the point *D*.

(,   )

(2)

(Total for Question 2 is 4 marks)

3 The incomplete table gives some information about the percentages of his income that Mr Chowdhury spent last month.

Item	Percentage of income
food	13%
housing	16%
leisure	8%
clothes	5%
transport	15%
furniture	20%
other items	%

(a) Complete the table to show the percentage of Mr Chowdhury's income spent on other items.

(2)

Mr Chowdhury spent 16% of his income on housing.

(b) Write 16% as a decimal.

(1)

Mr Chowdhury spent 13% of his income on food.

(c) Write 13% as a fraction.

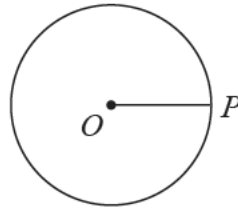**(1)**

Mr Chowdhury's income was 8000 taka last month.

(d) Work out 15% of 8000

(2)

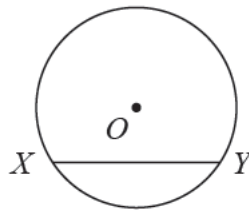**(Total for Question 3 is 6 marks)**

4   P is a point on a circle, centre O.

(a) Write down the mathematical name of the line OP.
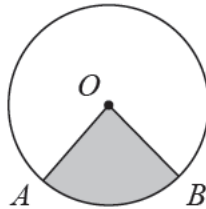
(1)

X and Y are points on a circle, centre O.

(b) Write down the mathematical name of the line XY.

(1)

A and B are points on a circle, centre O.

(c) Write down the mathematical name of the shaded region.

(1)

The diagram shows four identical circles and a rectangle.
The circles fit exactly in the rectangle without overlapping as shown in the diagram.

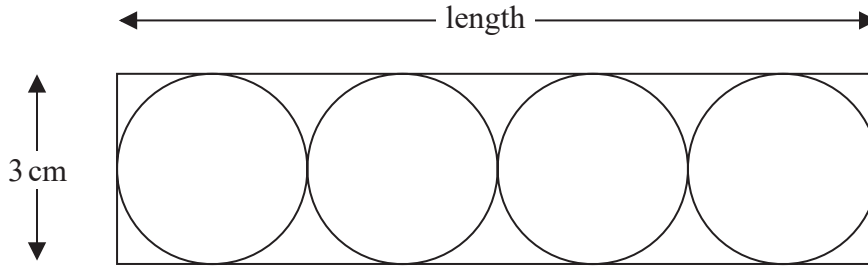length

Diagram **NOT**
accurately drawn

3 cm

The width of the rectangle is 3 cm.

(d) Work out the length of the rectangle.

.... cm
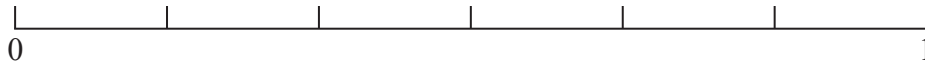
(1)

(Total for Question 4 is 4 marks)

5 There are 6 coins in a bag.

   2 of the coins are 5 cent coins
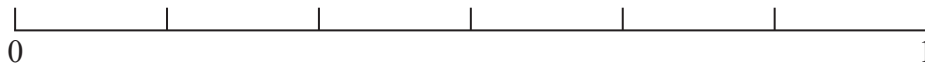   1 of the coins is a 10 cent coin
   3 of the coins are 20 cent coins

Gregor takes at random a coin from the bag.

(a) On the probability scale, mark with a cross (✕) the probability that the coin is a 5 cent coin.

```
|___|____|____|____|____|____|____|
0                                  1
```

(1)

(b) On the probability scale, mark with a cross (✕) the probability that the coin is a 50 cent coin.

```
|___|____|____|____|____|____|____|
0                                  1
```

(1)

Here are some words that can be used to describe likelihood.

| impossible | unlikely | evens | likely | certain |

(c) Choose the word from the box that best describes the likelihood that the coin is a 10 cent coin.

(1)

(Total for Question 5 is 3 marks)

6 Here are the amounts of money, in euros, earned last week by 10 workers in a company.

330   330   250   290   350   330   310   370   320   300

(a) Work out the mean.

.... euros

(2)

(b) Work out the median.

.... euros

(2)

(c) Find the mode.

.... euros

(1)

(d) Work out the range.

.... euros

(2)

(Total for Question 6 is 7 marks)

7 Here is a sketch of triangle *PQR*.

Diagram **NOT** accurately drawn

Q

6 cm

55°

P

8 cm

R
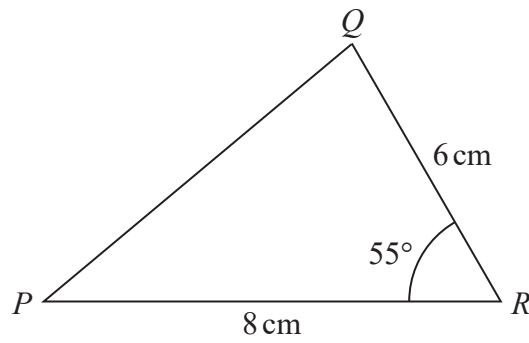
(a) Make an accurate drawing of triangle *PQR*.
   The line *PR* has already been drawn for you.

P ————————————————— *R*

(2)

Triangle *ABC* has been accurately drawn.
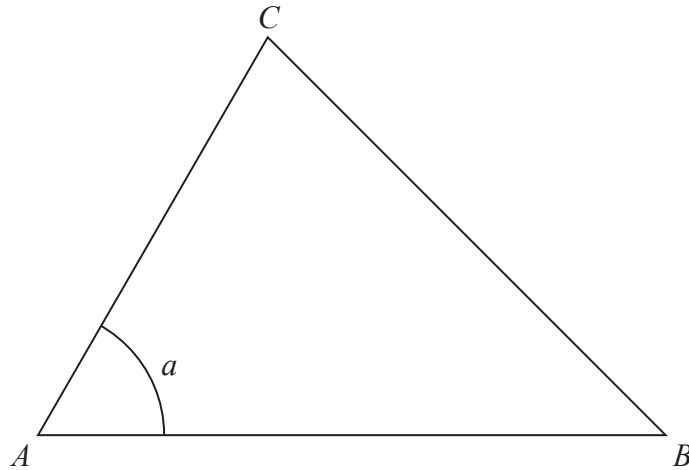
(b) Measure the size of angle *a*.

................................°

(1)

D is the point on *AB* such that *CD* is perpendicular to *AB*.

(c) On the accurate diagram above, mark the position of point *D* with a cross (✕)
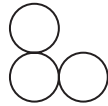Label the point *D*.

(1)

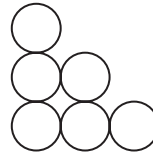**(Total for Question 7 is 4 marks)**

8 Here is a sequence of patterns made from circles in rows.

Pattern number 1   Pattern number 2   Pattern number 3   Pattern number 4
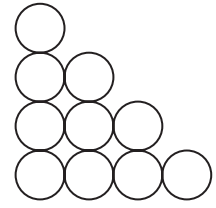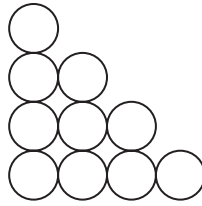
(a) In the space below, complete Pattern number 5

Pattern number 5

(1)

(b) Find the number of circles in Pattern number 6

(1)

(c) Write down the number of circles in the bottom row of Pattern number 20

(1)

There are more circles in Pattern number 30 than there are in Pattern number 28

(d) How many more?

(2)

(Total for Question 8 is 5 marks)

9 (a) Find two factors of 36 that have a sum greater than 14 but less than 20

.

and

(2)

N is an even number greater than 50
Two factors of the number N are 3 and 5

(b) Write down a possible value of N.

(2)

(Total for Question 9 is 4 marks)

Turn over ▶

10 $y = 2cx + d$

(a) Find the value of y when $x = 3$, $c = 4$ and $d = -8$

$y = \text{..}$

(2)

$y = 2cx + d$

(b) Find an expression for y in terms of c when $x = 2$ and $d = 3c$
Give your answer in its simplest form.

(2)

(Total for Question 10 is 4 marks)

11 Here is a rectangle.

24 cm

Diagram **NOT** accurately drawn

w cm

The area of the rectangle is 432 cm^2

Work out the value of w.

$w =$ ....

(Total for Question 11 is 2 marks)

12 Four congruent squares are used to form a shape.
Two squares meet at each vertex of the shape as shown in the diagram.

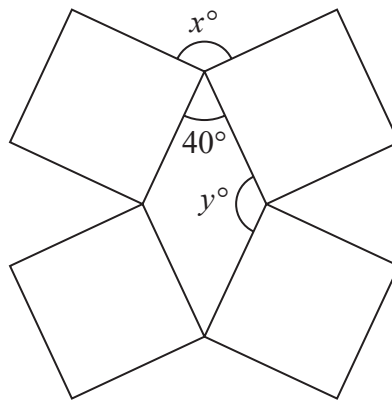Diagram **NOT**
accurately drawn

(a) Work out the value of x.

$x =$ ....

(2)

(b) Work out the value of y.

$y =$ ....

(1)

(Total for Question 12 is 3 marks)

13 Hamid puts 3 white counters and 5 grey counters into a bag.
Each counter has a number on it.

$$\textbf{1} \quad \textbf{1} \quad \textbf{2} \quad \textbf{1} \quad \textbf{2} \quad \textbf{3} \quad \textbf{3} \quad \textbf{3}$$
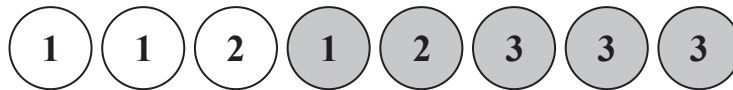
Hamid takes at random a counter from the bag.

(a) Write down the probability that the number on the counter is **3**

(1)

(b) Write down the probability that the counter does **not** have the number **1** on it.

(1)

(c) Write down the probability that the counter is grey with the number **1** on it.

(1)

(Total for Question 13 is 3 marks)

14 In a factory, 3 machines each make bottles.

Two of the machines each make 14 bottles every hour.
The other machine makes 18 bottles every hour.

Each machine makes bottles 24 hours a day.
Each machine makes bottles 7 days a week.

When made, the bottles are stored in crates.
When full, each crate holds 120 bottles.

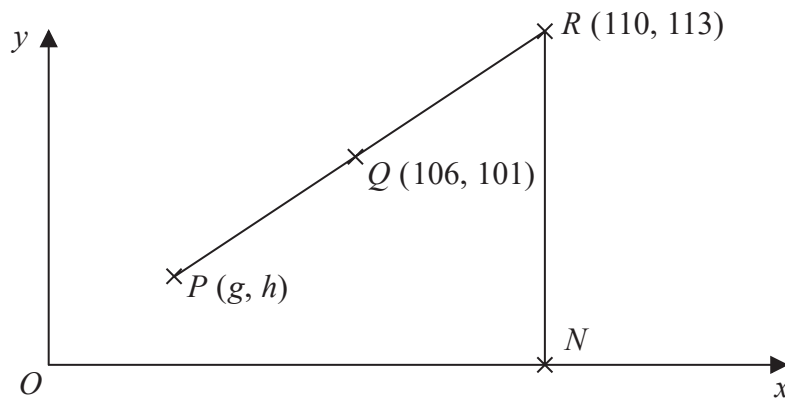How many crates are needed to store **all** the bottles made by the 3 machines in a week?

(Total for Question 14 is 4 marks)

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

15

Q is the midpoint of the line PR.

(a) Find the value of g and the value of h.

$g =$ ....

$h =$ ....

(2)

N is the point on the x-axis such that RN is parallel to the y-axis.

M is a point on the line RN.
M is also a point on the straight line with equation $x + y = 130$

(b) Find the coordinates of M.

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

(2)

(Total for Question 15 is 4 marks)

16 Yulia normally lives in Russia.
She buys a car in Cyprus.

The cost of the car is 15 400 euros.

The exchange rate is 1 euro = 63.21 Russian rubles.

(a) Change 15 400 euros into Russian rubles.

.... Russian rubles

(2)

The cost of insuring the car is 240 euros.

(b) Express 240 as a percentage of 15 400
Give your answer correct to 2 decimal places.

.... %

(2)

(Total for Question 16 is 4 marks)

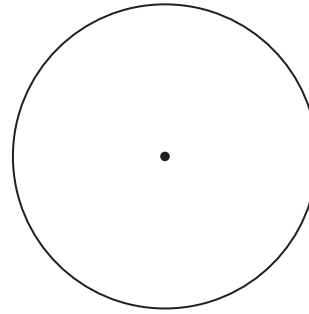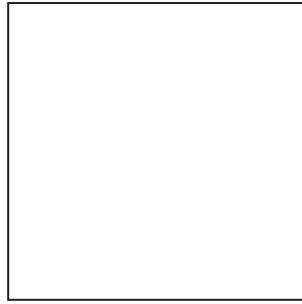**17** The diagram shows a square and a circle.

Diagram **NOT**
accurately drawn

The square has area $400 \, \text{cm}^2$

The diameter of the circle is equal to the length of a side of the square.

Work out the circumference of the circle.
Give your answer correct to 1 decimal place.

cm

(Total for Question 17 is 3 marks)

18 An aeroplane takes 11 hours 40 minutes to fly from London to Mauritius.
The aeroplane flies a distance of 9720 kilometres.

Work out the average speed of the aeroplane.
Give your answer in kilometres per hour, correct to the nearest whole number.

.... kilometres per hour

(Total for Question 18 is 3 marks)

19 The length of a car is 472 centimetres.

Mikhail makes a scale model of the car using a scale of 1 : 20

(a) Work out the length of the scale model.

centimetres
(2)

Alis makes a scale model of a bus.

The length of the real bus is 10.8 metres.
The length of the scale model is 60 centimetres.

Alis uses a scale of 1 : n where n is a whole number.

(b) Find the value of n.

$n =$
(3)

(Total for Question 19 is 5 marks)

P 5 5 9 4 1 A 0 2 3 2 8

20 (a) Solve $5x - 2 = x + 8$

Show clear algebraic working.

$$x = $$

(3)

(b) Factorise $3t - 5ty$

(1)

(c) Simplify $k^5 \times k$

(1)

(d) Solve $\dfrac{h}{2} - 8 < 5$

(2)

(Total for Question 20 is 7 marks)

21 Here is a right-angled triangle.

Diagram **NOT** accurately drawn

h cm

9 cm

6 cm
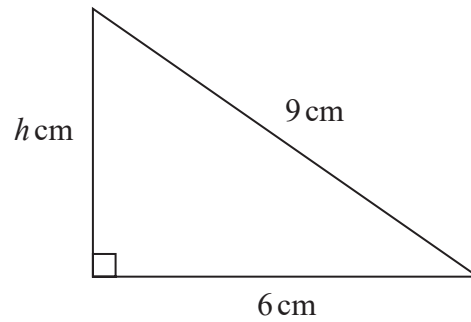
Calculate the value of h.
Give your answer correct to 2 decimal places.

$h =$ ....

(Total for Question 21 is 3 marks)

22 Show that $2\dfrac{1}{4} \times \dfrac{5}{6} = 1\dfrac{7}{8}$
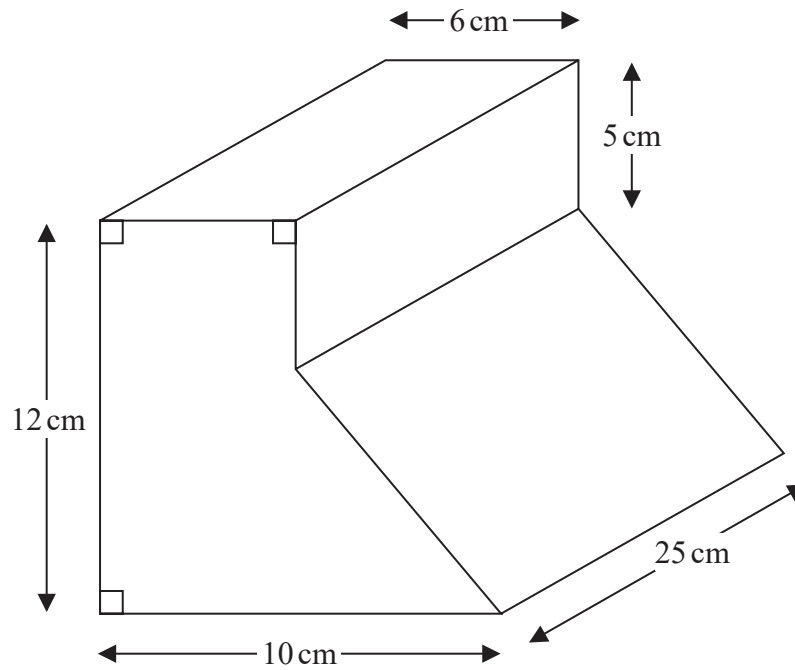
(Total for Question 22 is 3 marks)

23 Here is a prism.

Diagram **NOT** accurately drawn

Work out the volume of this prism.

cm³

(Total for Question 23 is 4 marks)

24 Eugenia bought 120 watches at 50 dollars each.

She sold $\frac{3}{4}$ of the watches at 80 dollars each.

She then sold all the remaining watches at 40 dollars each.

Work out her percentage profit.

%

(Total for Question 24 is 4 marks)

25 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$A = \{1, 3, 5, 7, 9\}$
$B = \{\text{numbers greater than 6}\}$

(a) List the members of the set $A \cup B$

(1)

$C = \{3, 6, 9\}$

(b) List the members of the set $A \cap C$

(1)

D is a set with 4 members.

$5 \in D$ and $B \cap D = \varnothing$

(c) List the members of one possible set D.

(2)

(Total for Question 25 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS