

Write your name here

Surname <b>FREAKES</b>	Other names <b>Mr</b>
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Pearson Edexcel  
Level 1/Level 2 GCSE (9 - 1)

Centre Number

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Candidate Number

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# Mathematics

## Paper 1 (Non-Calculator)

### Foundation Tier

Sample Assessment Materials – Issue 2 <b>Time: 1 hour 30 minutes</b>	Paper Reference <b>1MA1/1F</b>
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**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

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 not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



### Information

- The total mark for this paper is 80
- 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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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Turn over ►

PEARSON

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

MW3

- 1 Write the following numbers in order of size.  
Start with the smallest number.

0.61      0.1      0.16      0.106

0.610  
0.100  
0.160  
0.106

0.1, 0.106, 0.16, 0.61

(Total for Question 1 is 1 mark)

MW84  
MW85

- 2 Write 0.037 as a fraction.

$\frac{37}{1000}$

(Total for Question 2 is 1 mark)

- 3 Write down the 20th odd number.

1<sup>st</sup>      2<sup>nd</sup>      3<sup>rd</sup>      4<sup>th</sup>  
1,      3,      5,      7, ..... .

39

(Total for Question 3 is 1 mark)

- 4 Write down all the factors of 20

✓ (M1) at least 3 factors  
✓ (A1) all correct

MW28

1, 20, 2, 10, 4, 5

(Total for Question 4 is 2 marks)

- 5 Tanya needs to buy chocolate bars for all the children in Year 7  
Each of the 130 children get one chocolate bar.

There are 8 chocolate bars in each packet.

Work out the least number of packets of chocolate bars that Tanya needs to buy.

MW20

$$\begin{array}{r} 16.25 \\ 8 \overline{) 130.000} \\ \underline{8 \phantom{00}} 50 \\ \underline{40 \phantom{00}} 100 \\ \underline{80 \phantom{00}} 200 \\ \underline{160 \phantom{00}} 400 \\ \underline{400 \phantom{00}} 0 \end{array}$$

can't buy part of  
a packet so  
need 17 packets

$$130 \div 8 = 16.25$$

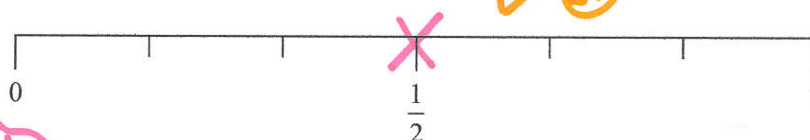
17 (1)

(Total for Question 5 is 3 marks)

- 6 Greg rolls a fair ordinary dice once.

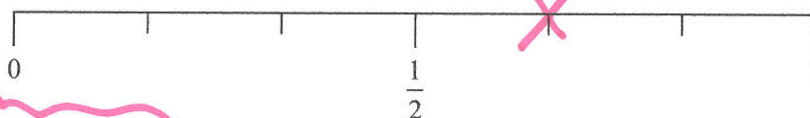
- (i) On the probability scale, mark with a cross (×) the probability that the dice will land on an odd number.

half  
the  
numbers  
are odd



- (ii) On the probability scale, mark with a cross (×) the probability that the dice will land on a number less than 5

four  
numbers  
are less than five



(Total for Question 6 is 2 marks)

MW14  
MW59



MW20  
MW67

- 7 One day Sally earned £60  
She worked for 8 hours.

Work out Sally's hourly rate of pay.

$$\begin{array}{r} 7.5 \\ 8 \overline{) 60.0} \end{array}$$

✓ (M1) for dividing

£ 7.50 (A1)

(Total for Question 7 is 2 marks)

MW87

- 8 Work out 15% of 80

$$\begin{array}{l} 10\% = 8 \\ 5\% = \frac{4}{12} \end{array}$$

✓ (M1)

12 ✓ (A1)

(Total for Question 8 is 2 marks)

MW59

- 9 There are 3 red beads and 1 blue bead in a jar.  
A bead is taken at random from the jar.

What is the probability that the bead is blue?

$\frac{1}{4}$  ✓ (B1)

(Total for Question 9 is 1 mark)

- 10 There are only black pens and green pens in a box.  
The ratio of the number of black pens in the box to the number of green pens in the box is 2 : 5

What fraction of the pens are black?

$\frac{2}{7}$  ✓ (B1)

(Total for Question 10 is 1 mark)

MW38

MW107

- 11 Sally has three tiles.  
Each tile has a different number on it.  
Sally puts the three tiles down to make a number.  
Each number is made with all three tiles.



Mw69

How many different numbers can Sally make?

- ① 1 2 3      ③ 2 3 1      ⑤ 3 1 2  
② 1 3 2      ④ 2 1 3      ⑥ 3 2 1

✓ ④ for listing

✓ ④  
6 different numbers

(Total for Question 11 is 2 marks)

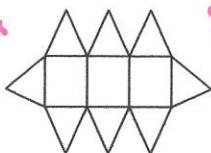
MW37  
MW102  
MW103

- 12 Here are the first three patterns in a sequence.  
The patterns are made from triangles and rectangles.



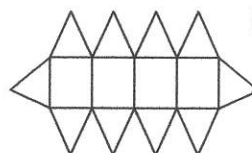
pattern number 1

6 triangles



pattern number 2

8



pattern number 3

10

- (a) How many triangles are there in pattern number 7?

6, 8, 10, 12, 14, 16, 18

✓  
(11)

18

(2)

Charlie says

"There are 4 rectangles in pattern number 3 so there will be 8 rectangles in pattern number 6"

- (b) Is Charlie right?  
Give a reason for your answer.

No he isn't. Pattern number 6 has  
got 16 triangles 7 rectangles  
(one more than the pattern number).

(Total for Question 12 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

13 Paul organised an event for a charity.

Each ticket for the event cost £19.95  
Paul sold 395 tickets.

Paul paid costs of £6000  
He gave all money left to the charity.

(a) Work out an estimate for the amount of money Paul gave to the charity.

key word

Round off the key values first

$\checkmark$  £19.95  $\approx$  £20  
 $\checkmark$  395  $\approx$  400  
 (P1) rounding  
 $400 \times 20 = 8000$   $\checkmark$   
 $8000 - 6000 = 2000$  (P1) multiply & subtract  
 £ 2000 (A1)  
 (3)

(b) Is your answer to (a) an underestimate or an overestimate?  
Give a reason for your answer.

overestimate because both the ticket price & number of tickets were rounded up in my estimate.  $\checkmark$  (E1)  
 (1)

(Total for Question 13 is 4 marks)

MW90  
MW91







14 The table shows information about the numbers of fruit trees in an orchard.

Apple tree	Pear tree	Plum tree
45	20	25

(a) The pictogram shows this information.

Complete the key for the pictogram.

Apple tree	
Pear tree	
Plum tree	

Key:  represents 5 trees

$$45 \div 9 = 5$$

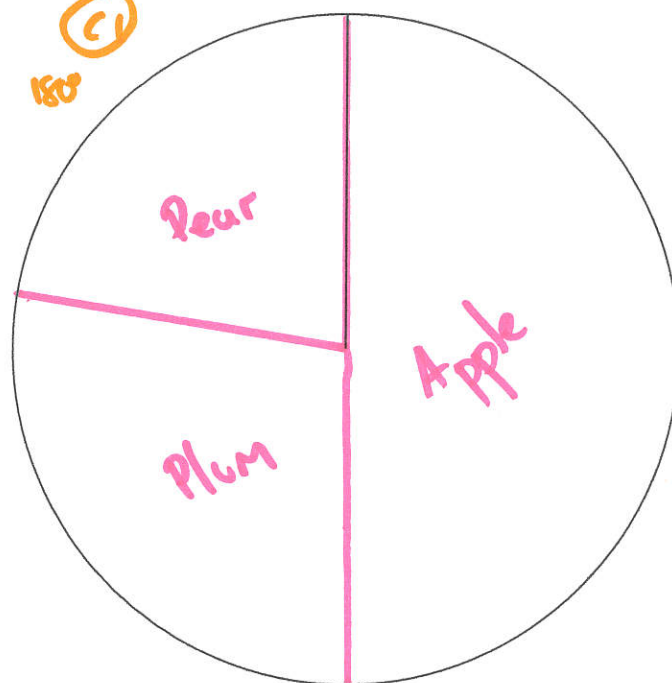
✓ (31)

(b) There are 90 fruit trees in the orchard.

$$360 \div 9 = 40 \text{ per tree}$$

Apple tree	Pear tree	Plum tree
45	20	25

Draw an accurate pie chart for this information.



$$\begin{array}{r} 45 \\ 4 \times \\ \hline 20 \\ 160 \\ \hline 180 \end{array}$$

✓ (C1) all angles

✓ (C1) completed pie chart

(Total for Question 14 is 4 marks)



15 Carpet tiles are going to be used to cover a floor.

The floor is a 1200mm by 1000mm rectangle.  
Each carpet tile is a 40cm by 30cm rectangle.

Exactly 10 carpet tiles can be used to cover the floor completely.

Show in a labelled sketch how this can be done.

$$1000\text{mm} = 1000\text{mm}$$

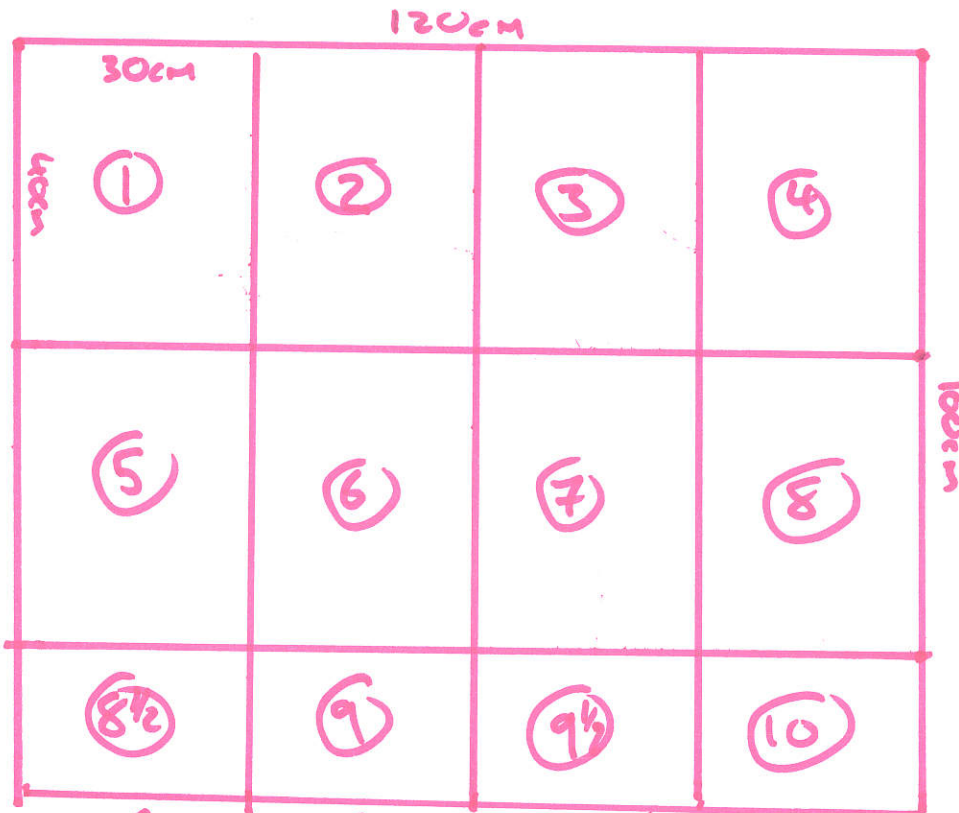
$$1200\text{mm} = 120\text{cm}$$

$$1000\text{mm} = 100\text{cm}$$

changing  
units

✓ (M1) attempt

✓ (E1) fully  
correct &  
labelled



Two tiles will need  
to be cut into halves

(Total for Question 15 is 3 marks)

HW112

- 16 Sam buys 20 boxes of oranges.  
There are 25 oranges in each box.

Each boxes of oranges costs £7

Sam sells  $\frac{2}{5}$  of the oranges he bought.

He sells each of these oranges for 40p.

He then sells each of the remaining oranges at 3 oranges for 50p.

Did Sam make a profit or did Sam make a loss?

You must show working to justify your answer.

$$\text{Total oranges} = 20 \times 25 \\ = 500$$

$$\frac{2}{5} \text{ of } 500 = 500 \div 5 \times 2 = 200$$

$$\text{Income} = 200 \times 40_p = 8000 \text{ pence} \\ = \pounds 80$$

$$\text{Remaining oranges } 500 - 200 = 300$$

$$\text{Groups of } 3: 300 \div 3 = 100$$

$$\text{Income} = 100 \times 50_p = 5000 \text{ pence} \\ = \pounds 50$$

$$\text{Total Income} = 50 + 80 = \pounds 130$$

$$130 < 140$$

Sam made a loss of £10

(Total for Question 16 is 5 marks)

MW22

MW72

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

17 100 students had some homework.

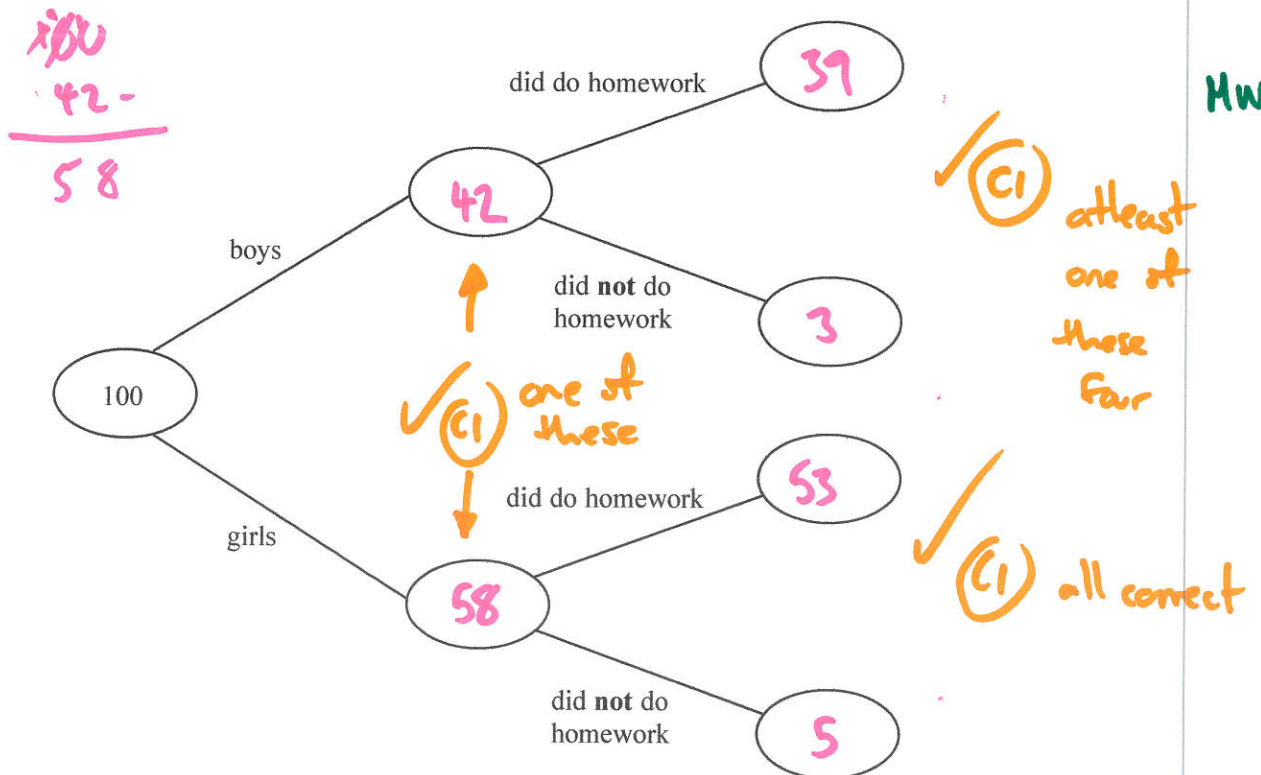
42 of these students are boys.

8 of the 100 students did **not** do their homework.

53 of the girls did do their homework.

(a) Use this information to complete the frequency tree.

(3)



One of the girls is chosen at random.

(b) Work out the probability that this girl did **not** do her homework.

$\checkmark$  (M1) 5 or 58

$\frac{5}{58}$   $\checkmark$  (A1)

(2)

(Total for Question 17 is 5 marks)

MW71

18 (a) Work out  $\frac{2}{7} + \frac{1}{5}$

$$\frac{2}{7} + \frac{1}{5}$$

$$\frac{10}{35} + \frac{7}{35} \quad \checkmark \quad (M1)$$

$$\frac{17}{35} \quad \checkmark \quad (A1)$$

(2)

MW74

(b) Work out  $1\frac{2}{3} \div \frac{3}{4}$

$$\frac{5}{3} \times \frac{4}{3} \quad \checkmark \quad (M1)$$

$$\frac{20}{9} \quad \checkmark \quad (A1)$$

(2)

(Total for Question 18 is 4 marks)

MW135

19 Solve  $4x + 5 = x + 26$

$$3x = 21 \quad \checkmark \quad (M1)$$

$$x = 7$$

$$x = 7 \quad \checkmark \quad (A1)$$

(Total for Question 19 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 20 In a sale, normal prices are reduced by 20%.  
The normal price of a coat is reduced by £15

Work out the normal price of the coat.

20% = £15  
100% = £75

Read this very carefully

£ 75

(Total for Question 20 is 2 marks)

- 21 Work out  $6.34 \times 5.2$

$$\begin{array}{r} 634 \\ 52 \times \\ \hline 1268 \\ 31700 \\ \hline 32968 \end{array}$$

$$\begin{array}{r} 600 \quad 30 \quad 4 \\ 50 \mid 30000 \quad 1500 \quad 200 \\ 2 \mid 1700 \quad 60 \quad 8 \end{array}$$

$$\begin{array}{r} 30000 \\ 1500 \\ 1200 \\ 200 \\ 60 \\ 8 \\ \hline 32968 \end{array}$$

Estimate  
 $6 \times 5 = 30!$

$$32968$$

32.968

(Total for Question 21 is 3 marks)

MW110

MW66

22 Expand and simplify  $(m + 7)(m + 3)$

$$m^2 + 3m + 7m + 21$$

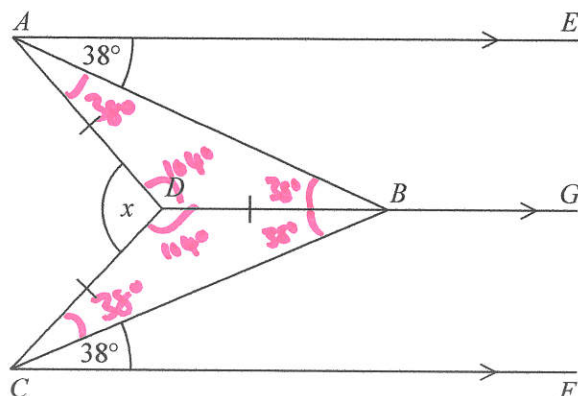
✓ (M1) at least 3 terms

$$m^2 + 10m + 21$$

✓ (A1)

(Total for Question 22 is 2 marks)

23



$AE$ ,  $DBG$  and  $CF$  are parallel.

$DA = DB = DC$ .

Angle  $EAB = \text{angle } BCF = 38^\circ$

Work out the size of the angle marked  $x$ .

You must show your working.

$$\hat{A}BD = \hat{B}AE = 38^\circ$$

alternate angles

$$\hat{C}BD = \hat{B}CF = 38^\circ$$

"

$$\hat{A}BD = \hat{A}DB = 38^\circ$$

isosceles triangles

$$\hat{C}BD = \hat{C}DB = 38^\circ$$

"

$$\angle CDB \text{ \& } \angle ADB \text{ both } 114^\circ$$

$$180 - 2 \times 38 = 180 - 76 = 104^\circ$$

$$x = 360 - (104 + 104) = 360 - 208 = 152^\circ$$

angles around a point

(Total for Question 23 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

- 24 Gary drove from London to Sheffield.  
It took him 3 hours at an average speed of 80 km/h.

Lyn drove from London to Sheffield.  
She took 5 hours.

Assuming that Lyn  
drove along the same roads as Gary  
and did not take a break,

- (a) work out Lyn's average speed from London to Sheffield.

Gary:  $\text{Distance} = \text{Speed} \times \text{time}$   
 $= 80 \times 3$  ✓ (P1)  
 $= 240 \text{ km}$

Lyn:  $\text{Speed} = \text{Distance} \div \text{time}$   
 $= 240 \div 5$  ✓ (P1)  
 $= 48 \text{ km/h}$

48 ✓ (A1)  
 ..... km/h  
 (3)

- (b) If Lyn did **not** drive along the same roads as Gary, explain how this could affect your answer to part (a).

If she used different roads the distance traveled would be different from Gary. ✓ (C1) (1)

(Total for Question 24 is 4 marks)

MW142

25 In a company, the ratio of the number of men to the number of women is 3:2

40% of the men are under the age of 25

10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

MW106  
MW87

Imagine there are 100 people in the company.

~~100~~ 100  
3 : 2  
x20 ↘ 60 40 ↗ x20  
Men women  
3 + 2 = 5 ✓ (P1)  
100 ÷ 5 = 20

10% of 60 is 6

10% of 40 is 4

40% of 60 is 24

28 %

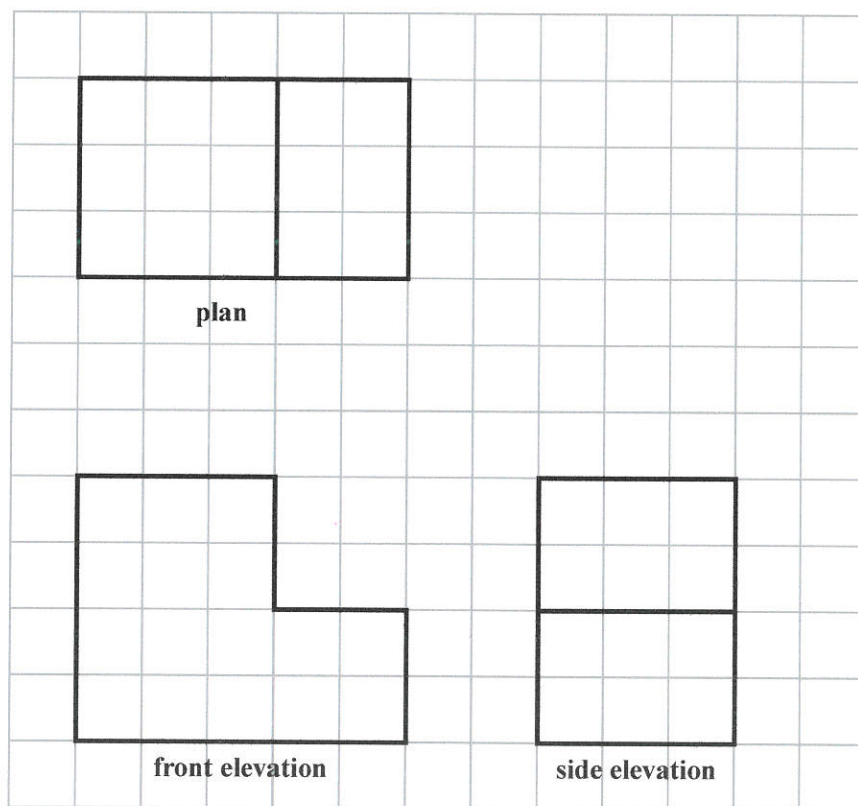
(Total for Question 25 is 4 marks)

In total there are ~~24~~ 24 + 4 = 28 people under 25. ✓ (P1)

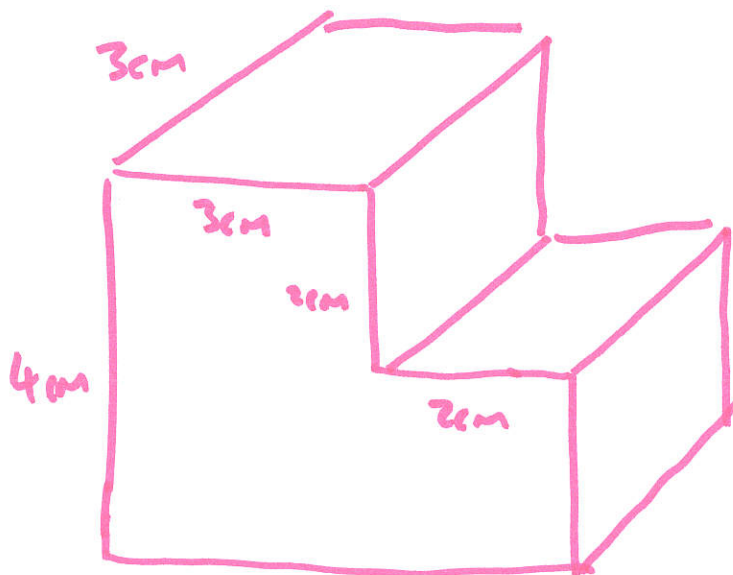
As there are 100 people in the company the percentage is 28%



- 26 The plan, front elevation and side elevation of a solid prism are drawn on a centimetre grid.



In the space below, draw a sketch of the solid prism.  
Write the dimensions of the prism on your sketch.



(Total for Question 26 is 2 marks)

✓ (C1) at least 2 correct dimensions  
✓ (C1) fully correct

MWSI

MW72

27 There are 1200 students at a school.

Kate is helping to organise a party.  
She is going to order pizza.

Kate takes a sample of 60 of the students at the school.  
She asks each student to tell her **one** type of pizza they want.

The table shows information about her results.

Pizza	Number of students
* ham	20
salami	15
vegetarian	8
margarita	17

Work out how much ham pizza Kate should order.

Write down any assumption you make **and** explain how this could affect your answer.

$$\frac{20}{60} = \frac{2}{6} = \frac{1}{3} \text{ of students want Ham} \quad \checkmark \text{ (P1)}$$

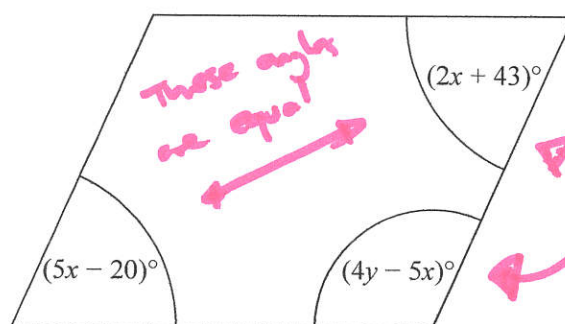
$$\frac{1}{3} \text{ of } 1200 = 1200 \div 3 = 400 \quad \checkmark \text{ (A1)}$$

Kate should order 400 Ham pizzas.

I have assumed Kate's sample is a fair representation of the views of all students. ✓ (C1)

(Total for Question 27 is 3 marks)

28 Here is a parallelogram.



Work out the value of  $x$  and the value of  $y$ .

$$5x - 20 = 2x + 43 \quad \checkmark \quad (1)$$

$$5x = 2x + 63$$

$$3x = 63 \quad \checkmark \quad (1)$$

$$x = 21 \quad \checkmark \quad (1)$$

$$2x + 43 + 4y - 5x = 180 \quad \checkmark \quad (1)$$

$$2 \times 21 + 43 + 4y - (5 \times 21) = 180$$

$$4y - 20 = 180$$

$$4y = 200$$

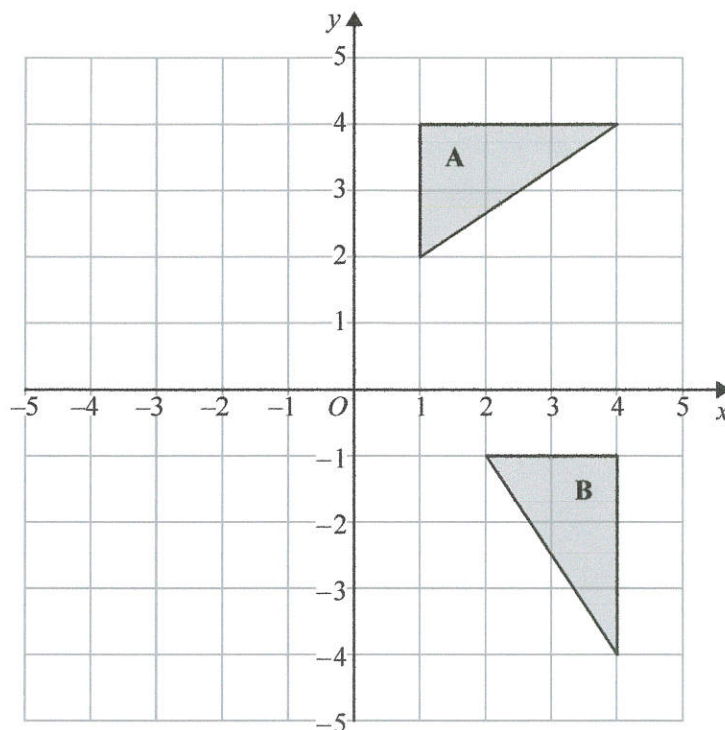
$$y = 50$$

$$x = 21$$

$$y = 50 \quad \checkmark \quad (1)$$

(Total for Question 28 is 5 marks)





Describe fully the single transformation that maps triangle A onto triangle B.

Rotation  
90° clockwise

about (4, 2)

(Total for Question 29 is 2 marks)

30  $\mathbf{a} = \begin{pmatrix} 3 \\ -7 \end{pmatrix}$ ,  $\mathbf{b} = \begin{pmatrix} 4 \\ 2 \end{pmatrix}$

Work out  $\mathbf{b} - 2\mathbf{a}$  as a column vector.

$$\begin{pmatrix} 4 \\ 2 \end{pmatrix} - 2 \begin{pmatrix} 3 \\ -7 \end{pmatrix} = \begin{pmatrix} 4 \\ 2 \end{pmatrix} - \begin{pmatrix} 6 \\ -14 \end{pmatrix} = \begin{pmatrix} -2 \\ 16 \end{pmatrix}$$

(Total for Question 30 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS