

Write your name here

Surname

Other names

Pearson Edexcel
Level 1 / Level 2
GCSE (9–1)

Centre Number

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Candidate Number

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Mathematics

Paper 3 (Calculator)

Foundation Tier

Lidstone Predicted Paper 'we haven't seen this stuff yet'!
Time: 1 hour 30 minutes

Paper Reference

1MA1/3F

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.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **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 section 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

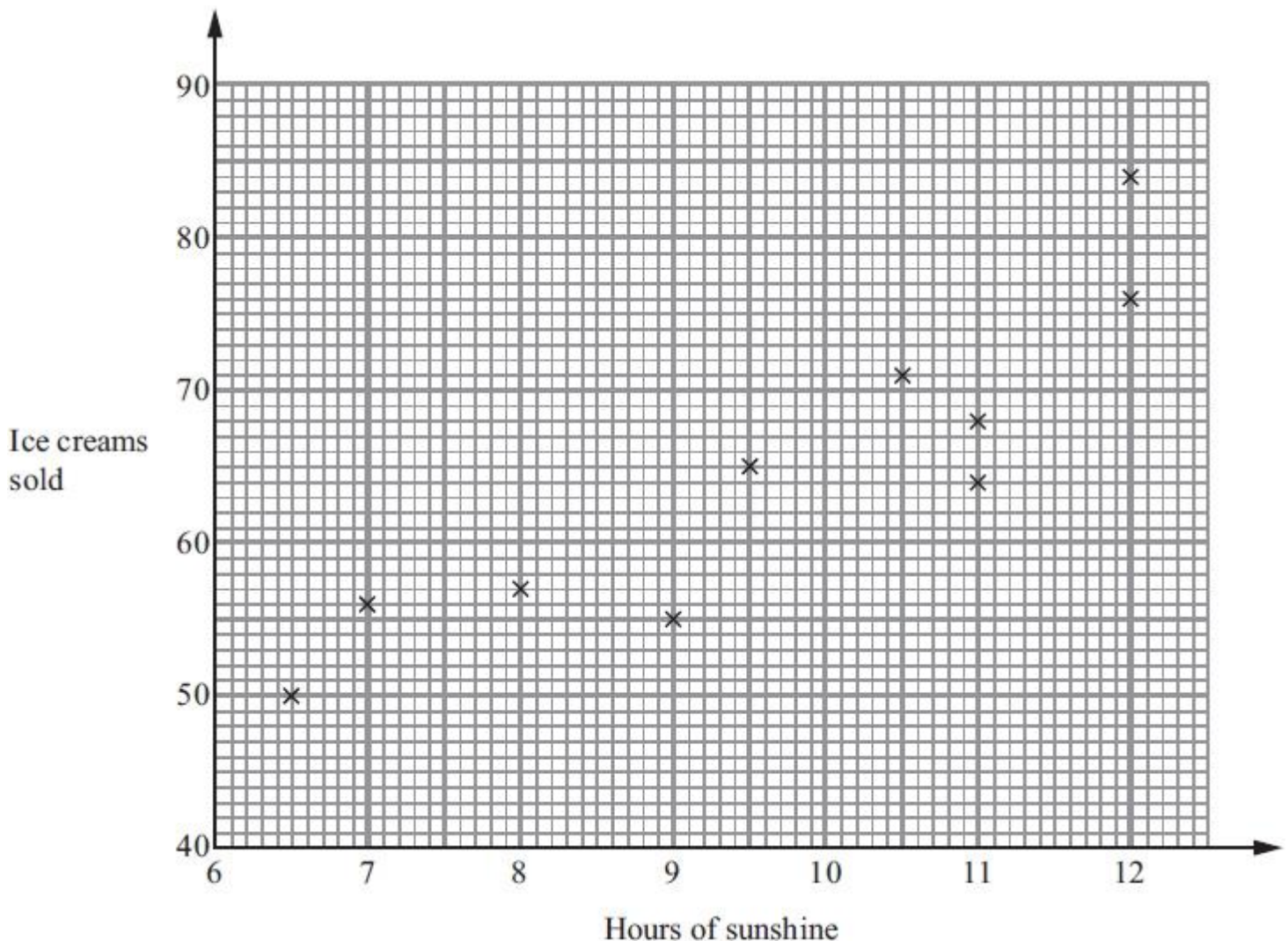
- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1.

A beach cafe sells ice creams.

Each day the manager records the number of hours of sunshine and the number of ice creams sold.

The scatter graph shows this information.



On another day there were 11.5 hours of sunshine and 73 ice creams sold.

(a) Show this information on the scatter graph.

(1)

(b) Describe the relationship between the number of hours of sunshine and the number of ice creams sold.

.....

(1)

One day had 10 hours of sunshine.

(c) Estimate how many ice creams were sold.

.....

(2)

(Total for Question is 4 marks)

Q2.

The two-way table shows some information about how some men and some women travelled to work yesterday.

| | Train | Car | Bus | Total |
|-------|-------|-----|-----|-------|
| Men | 12 | | 6 | 28 |
| Women | | 4 | | |
| Total | | | 13 | 50 |

- (a) Work out the total number of women.

.....
(1)

- (b) Work out the number of people who travelled to work by train yesterday.

.....
(3)

A man is chosen at random from all these men.

- (c) Write down the probability that he travelled to work by train.
Give your answer as a fraction in its simplest form.

.....
(2)

(Total for question = 6 marks)

Q3.

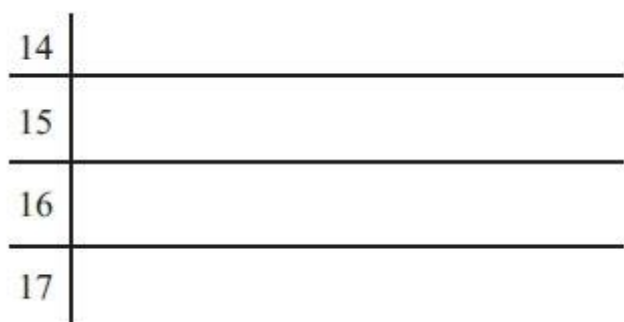
There are 25 students in a class.

12 of the students are girls.

Here are the heights, in cm, of the 12 girls.

160 173 148 154 152 164 179 164 162 174 168 170

(a) Show this information in an ordered stem and leaf diagram.



(3)

There are 13 boys in the class.

Here are the heights, in cm, of the 13 boys.

157 159 162 166 168 169 170 173 174 176 176 181 184

* (b) Compare the heights of the boys with the heights of the girls.

(3)

(Total for Question is 6 marks)

Q4.

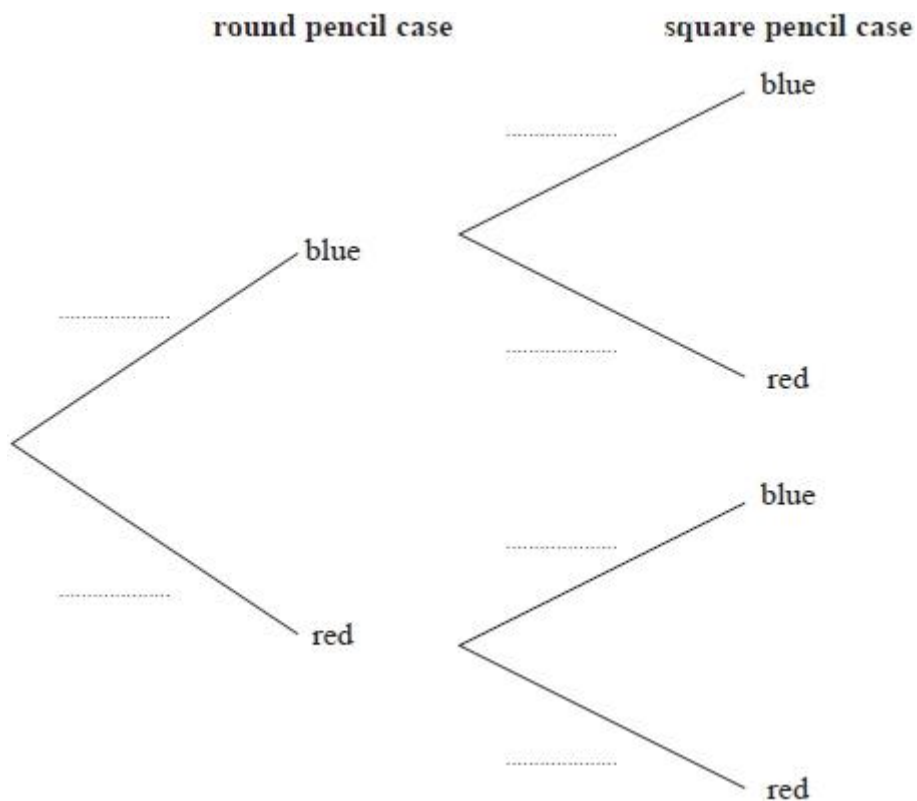
Sameena has a round pencil case and a square pencil case.

There are 4 blue pens and 3 red pens in the round pencil case.

There are 3 blue pens and 5 red pens in the square pencil case.

Sameena takes at random one pen out of each pencil case.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that the pens Sameena takes are both red.

(2)

(Total for question = 4 marks)

Q5.

Jenny works in a shop that sells belts.

The table shows information about the waist sizes of 50 customers who bought belts from the shop in May.

| Belt size | Waist (w inches) | Frequency |
|-------------|---------------------|-----------|
| Small | $28 < w \leq 32$ | 24 |
| Medium | $32 < w \leq 36$ | 12 |
| Large | $36 < w \leq 40$ | 8 |
| Extra Large | $40 < w \leq 44$ | 6 |

(a) Calculate an estimate for the mean waist size.

..... inches
(3)

Belts are made in sizes Small, Medium, Large and Extra Large.

Jenny needs to order more belts in June.
The modal size of belts sold is Small.

Jenny is going to order $\frac{3}{4}$ of the belts in size Small.

The manager of the shop tells Jenny she should **not** order so many Small belts.

(b) Who is correct, Jenny or the manager?
You must give a reason for your answer.

.....
.....

(2)

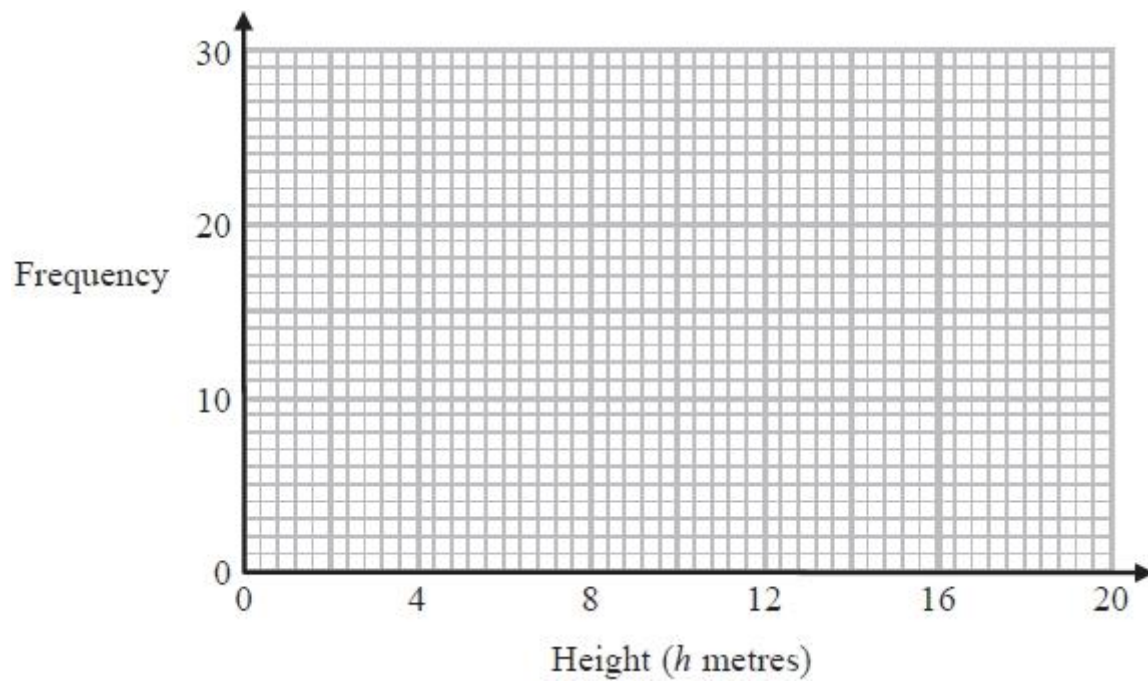
(Total for question is 5 marks)

Q6.

The table shows information about the heights of 50 trees.

| Height (h metres) | Frequency |
|----------------------|-----------|
| $0 < h \leq 4$ | 8 |
| $4 < h \leq 8$ | 21 |
| $8 < h \leq 12$ | 12 |
| $12 < h \leq 16$ | 7 |
| $16 < h \leq 20$ | 2 |

Draw a frequency polygon for the information in the table.



(Total for question = 2 marks)

Q7.

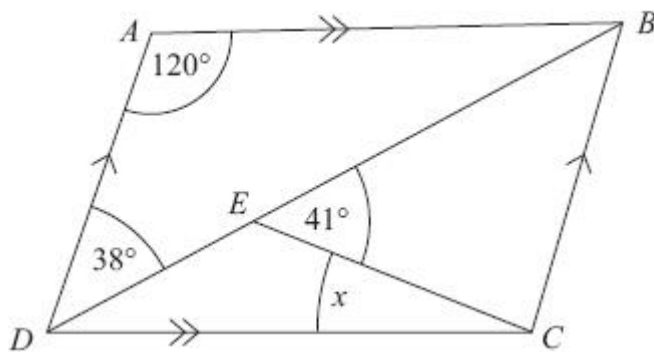


Diagram **NOT**
accurately drawn

$ABCD$ is a parallelogram.

Angle $ADB = 38^\circ$.

Angle $BEC = 41^\circ$.

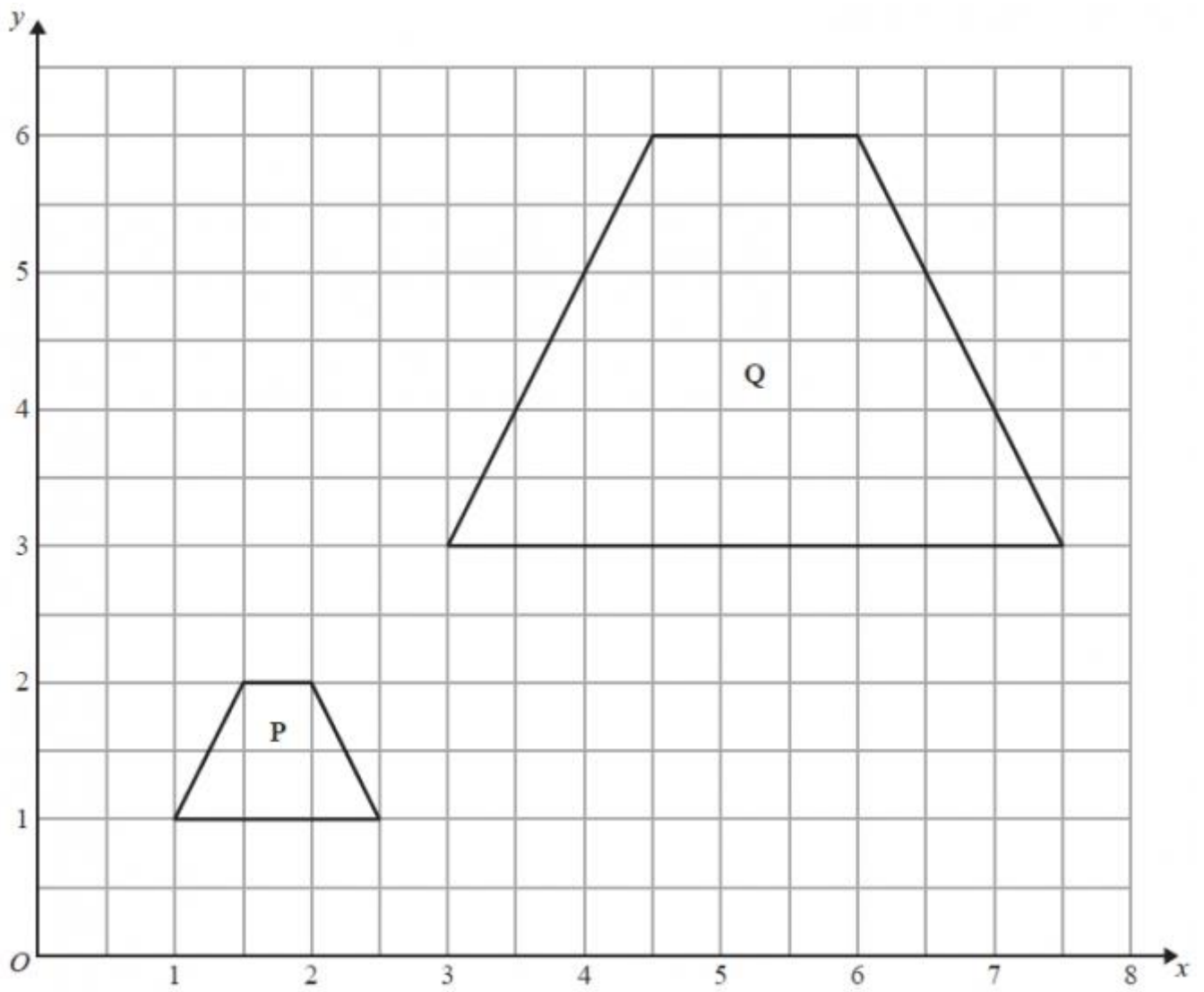
Angle $DAB = 120^\circ$.

Calculate the size of angle x .

You must give reasons for your answer.

(Total for Question is 4 marks)

Q8.



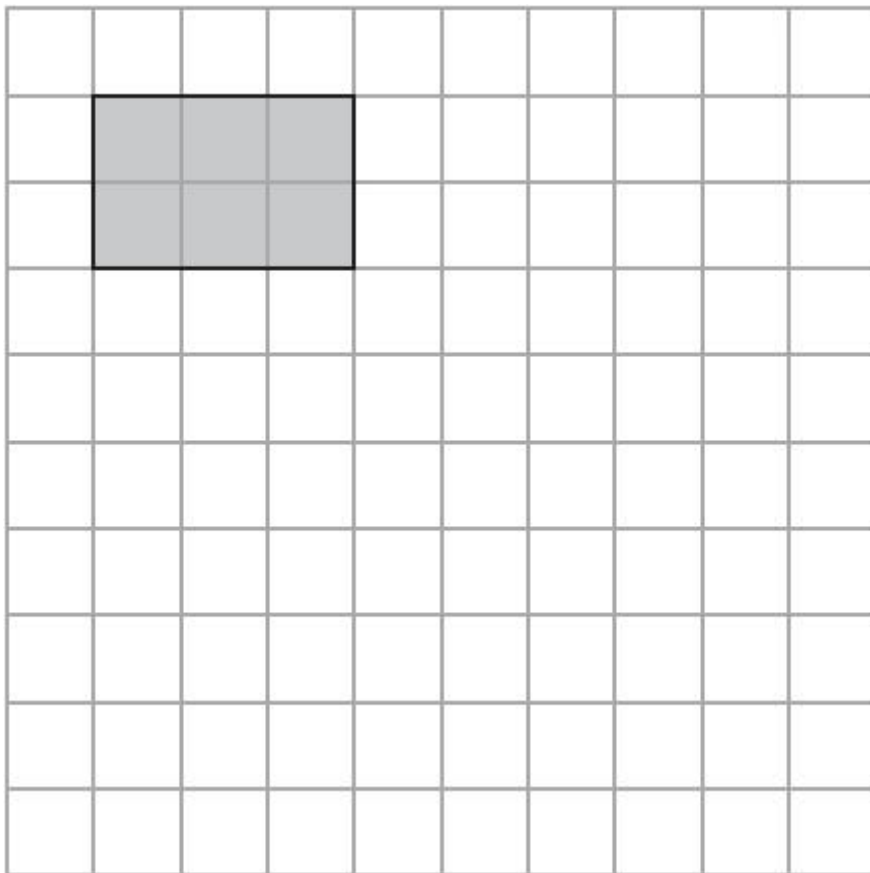
Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....
.....

(Total for Question is 3 marks)

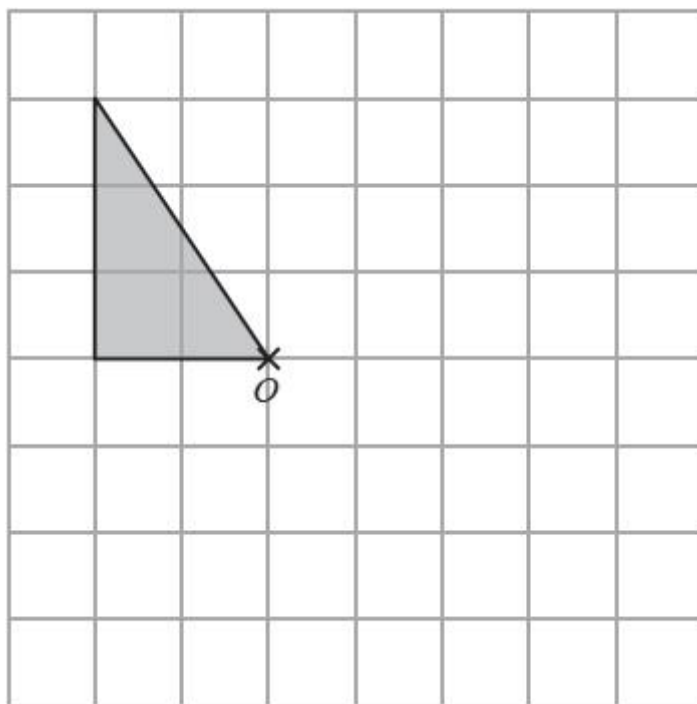
Q9.

- (a) On the grid, draw an enlargement of the rectangle with scale factor 2



(1)

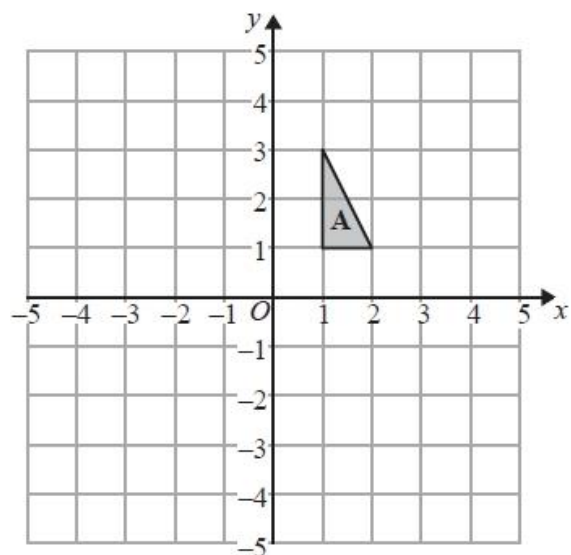
- (b) On the grid, rotate the triangle 90° clockwise about the point O.



(2)

(Total for question = 3 marks)

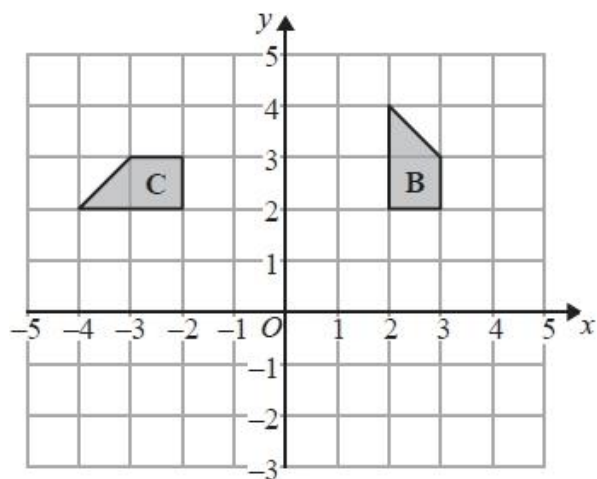
Q10.



$$\begin{pmatrix} -3 \\ -1 \end{pmatrix}$$

(a) On the grid above, translate shape **A** by the vector

(2)



(b) Describe fully the single transformation that maps shape **B** onto shape **C**.

.....

(3)

(Total for question = 5 marks)

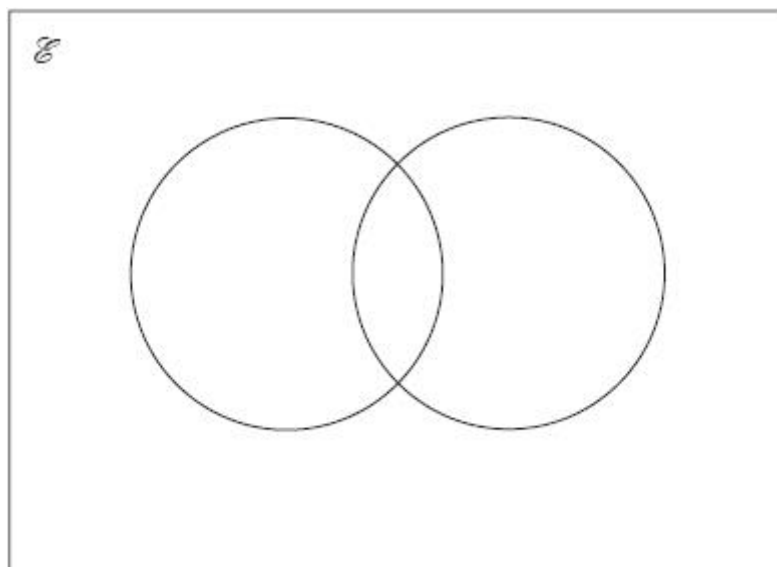
Q11.

\mathcal{E} = odd numbers less than 30

$A = 3, 9, 15, 21, 27$

$B = 5, 15, 25$

(a) Complete the Venn diagram to represent this information.



(4)

A number is chosen at random from the universal set, \mathcal{E} .

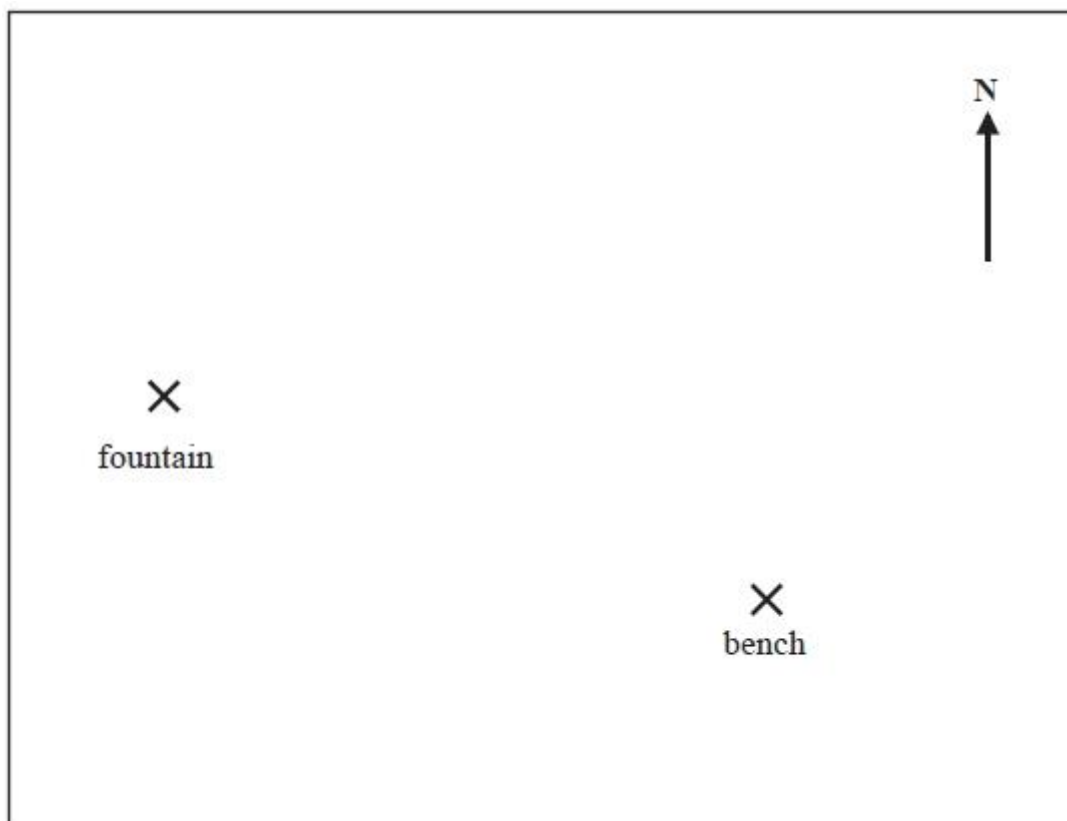
(b) What is the probability that the number is in the set $A \cup B$?

.....
(2)

(Total for question = 6 marks)

Q12.

The diagram shows a scale drawing of a garden.



Scale: 1 centimetre represents 2 metres

(a) Work out the real distance from the fountain to the bench.

..... metres

(1)

(b) Measure the bearing of the bench from the fountain.

..... °

(2)

Haavi is going to plant a tree in the garden.

The tree must be

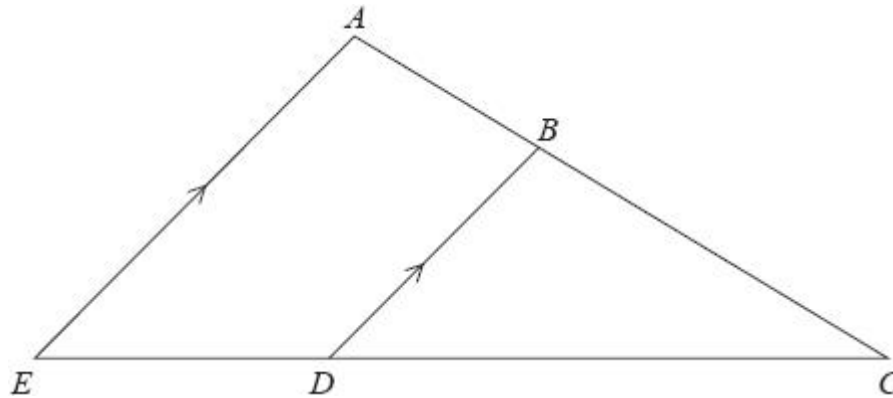
less than 7 metres from the fountain,
less than 12 metres from the bench.

(c) On the diagram show, by shading, the region in which Haavi can plant the tree.

(3)

(Total for question = 6 marks)

Q13.



ABC and EDC are straight lines.
 EA is parallel to DB .

$EC = 8.1$ cm.
 $DC = 5.4$ cm.
 $DB = 2.6$ cm.

(a) Work out the length of AE .

..... cm
(2)

$AC = 6.15$ cm.

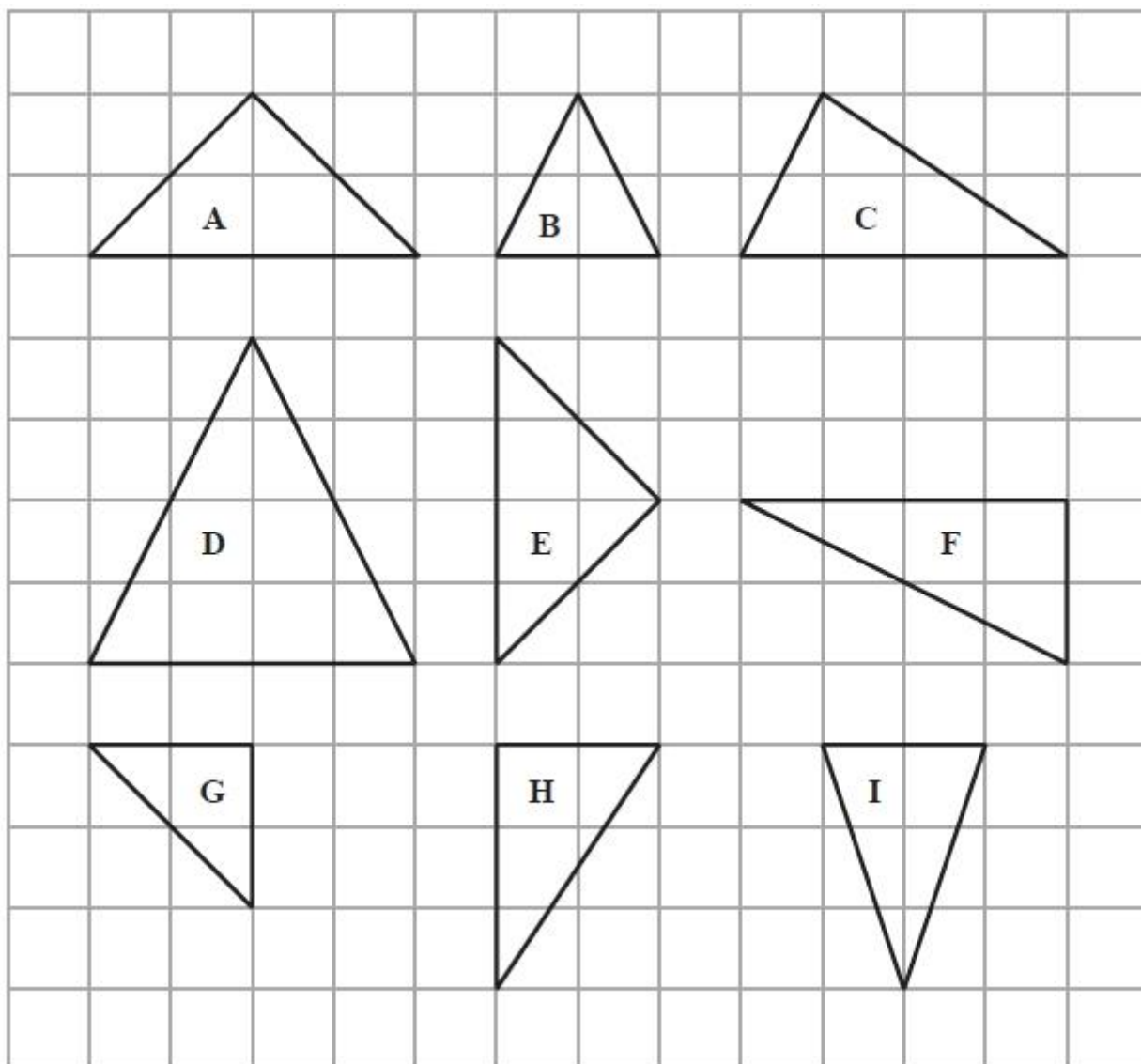
(b) Work out the length of AB .

..... cm
(2)

(Total for question = 4 marks)

Q14.

Here are some triangles drawn on a grid.



Two of these triangles are congruent.

(a) Write down the letters of these triangles.

..... and
(1)

One of the triangles is similar to triangle **B**.

(b) Write down the letter of this triangle.

.....
(1)

(Total for Question is 2 marks)

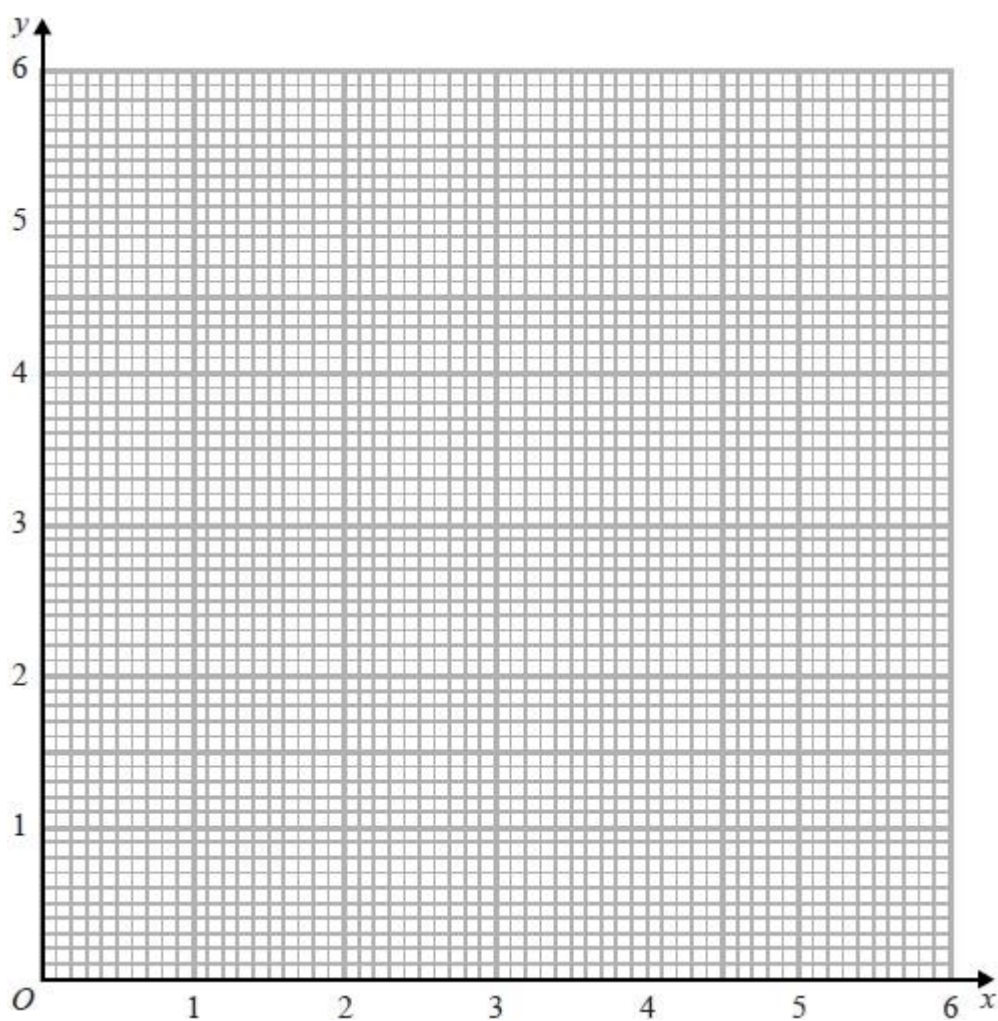
Q15.

(a) Complete the table of values for $y = \frac{3}{x}$

| | | | | | | | |
|-----|-----|---|-----|---|------|---|---|
| x | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 |
| y | | 3 | 1.5 | | 0.75 | | |

(2)

(b) On the grid, draw the graph of $y = \frac{3}{x}$ for values of x from 0.5 to 6



(2)

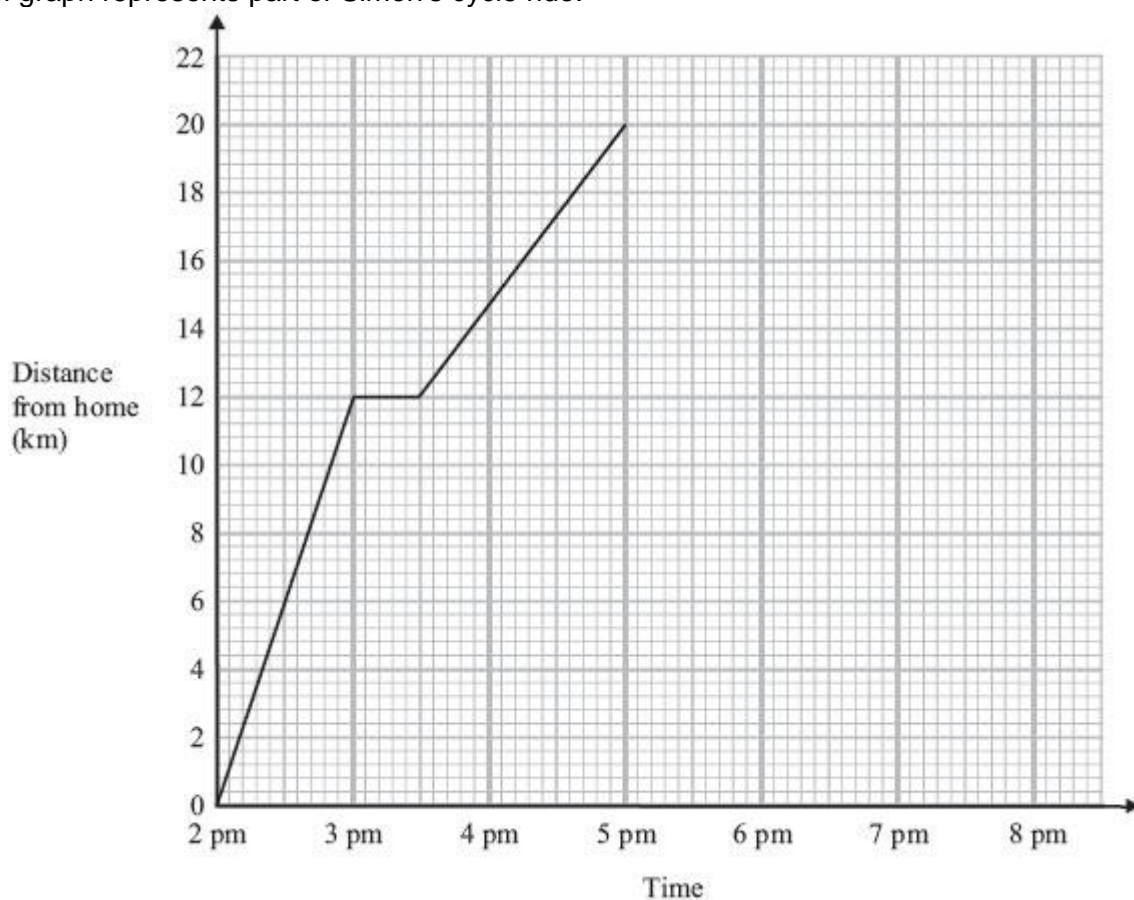
(Total for question = 4 marks)

Q16.

Simon went for a cycle ride.

He left home at 2 pm.

The travel graph represents part of Simon's cycle ride.



At 3 pm Simon stopped for a rest.

(a) How many minutes did he rest?

.....

(1)

(b) How far was Simon from home at 5 pm?

.....

(1)

At 5 pm Simon stopped for 30 minutes.

Then he cycled home at a steady speed.

It took him 1 hour 30 minutes to get home.

(c) Complete the travel graph.

(2)

(Total for Question is 4 marks)

Q17.

(a) Expand $2a(a + 7)$

..... (1)

(b) Factorise $14b - 7$

..... (1)

(c) Solve $9(c - 6) = 63$

$c =$ (2)

(d) Simplify $3y^2 \times 4y^3$

..... (1)

(Total for question = 5 marks)

Q18.

(a) Solve $2x^2 = 72$

..... (2)

(b) Expand and simplify $(2x + 1)(3x - 2)$

..... (2)

(c) Factorise $x^2 + 6x + 9$

..... (1)

(Total for question = 5 marks)

Q19.

Solve the simultaneous equations

$$\begin{aligned}4x + y &= 10 \\ x - 5y &= 13\end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total for question = 3 marks)

Q20.

(a) Write 340 000 000 in standard form.

.....

(1)

(b) Work out $(1.67 \times 10^{-7}) \div (9.11 \times 10^{-3})$

Give your answer as an ordinary number correct to 3 significant figures.

.....

(2)

(Total for question = 3 marks)

Q21.

In a sale, normal prices are reduced by 17%.
The normal price of a washing machine is reduced by £42.50

Work out the sale price of the washing machine.

£

(Total for question = 3 marks)

Q22.

Emily buys a pack of 12 bottles of water.
The pack costs £5.64

Emily sells all 12 bottles for 50p each.

Work out Emily's percentage profit.
Give your answer correct to 1 decimal place.

..... %

(Total for question = 3 marks)

Q23.

Oliver orders some items from an electrical store.
Here is his bill.

(a) Complete the bill.

| Live Wire Store | | | |
|-----------------|----------------|------------|---------|
| Quantity | Item | Unit price | Total |
| 2 | Table lamps | £ 14.98 | £ 29.96 |
| 5 | Light switches | £ 6.40 | £ |
| | Light bulbs | £ 1.83 | £ 21.96 |
| Delivery charge | | | £ 5.00 |
| Total cost | | | £ |

(3)

At the beginning of October, Oliver has £452.25 in his bank account.

During October, Oliver

- puts £120 into his bank account
- has £2.56 interest added to his bank account
- spends £64.83 from his bank account.

(b) How much money is in Oliver's bank account at the end of October?

£

(3)

(Total for question = 6 marks)

Q24.

Work out the reciprocal of 0.125

.....

(Total for question is 1 mark)

Q25.

Here are the first four terms of a number sequence.

3 7 11 15

(a) (i) Write down the next term in the sequence.

.....

(ii) Explain how you got your answer.

.....

(2)

(b) Work out the 11th term in the sequence.

.....

(1)

(c) Is 79 a term in this sequence?

Explain how you got your answer.

.....

.....

(1)

(Total for question = 4 marks)

Q26.

Use your calculator to work out $\sqrt{\frac{\sin 25^\circ + \sin 40^\circ}{\cos 25^\circ - \cos 40^\circ}}$

(a) Write down all the figures on your calculator display.

.....

(2)

(b) Write your answer to part (a) correct to 2 decimal places.

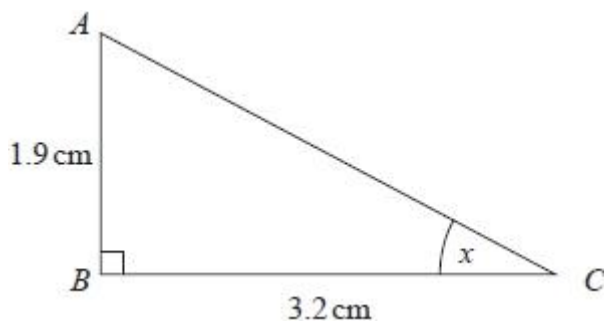
.....

(1)

(Total for question = 3 marks)

Q27.

ABC is a right-angled triangle.



Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

..... °

(Total for question = 2 marks)