Write your name here

Surname	Other names

Pearson Edexcel International GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics A

Paper 2F

Foundation Tier

Tuesday 17 January 2017 – Morning
Time: 2 hours

Paper Reference
4MA0/2F

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 ▶

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1/1/1/

P 4 8 0 3 0 A 0 1 2 4

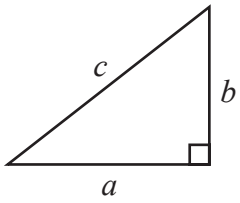
Pearson

International GCSE MATHEMATICS

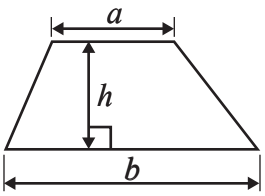
FORMULAE SHEET – FOUNDATION TIER

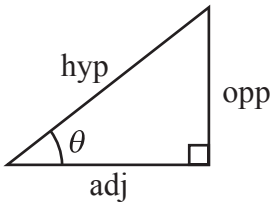
Pythagoras' Theorem

$a^2 + b^2 = c^2$



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





adj = hyp × cos θ

opp = hyp × sin θ

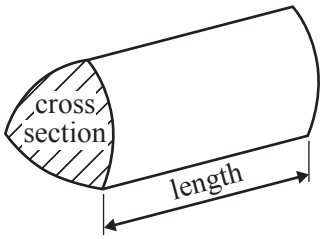
opp = adj × tan θ

or $\sin\theta = \frac{\text{opp}}{\text{hyp}}$

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

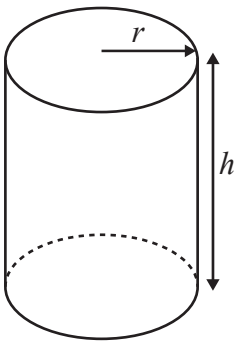
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



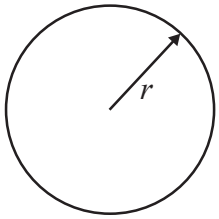
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

Curved surface area of cylinder = $2\pi rh$



Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Write in figures the number thirty five thousand and seventy nine.

.....

(1)

(b) Write down the value of the 7 in the number 4709

.....

(1)

(c) Write down all the factors of 70

.....

(2)

Here is a list of numbers.

3471 5009 855 738 9113 1042 2005

(d) Subtract the smallest number in the list from the largest number in the list.

.....

(2)

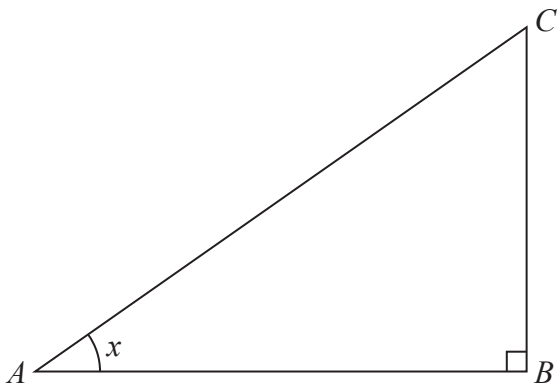
(Total for Question 1 is 6 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

2 The diagram shows triangle *ABC*.



(a) Measure the length of *AB*.

..... cm

(1)

(b) Measure the size of the angle marked *x*.

..... °

(1)

The angle at *B* is 90°

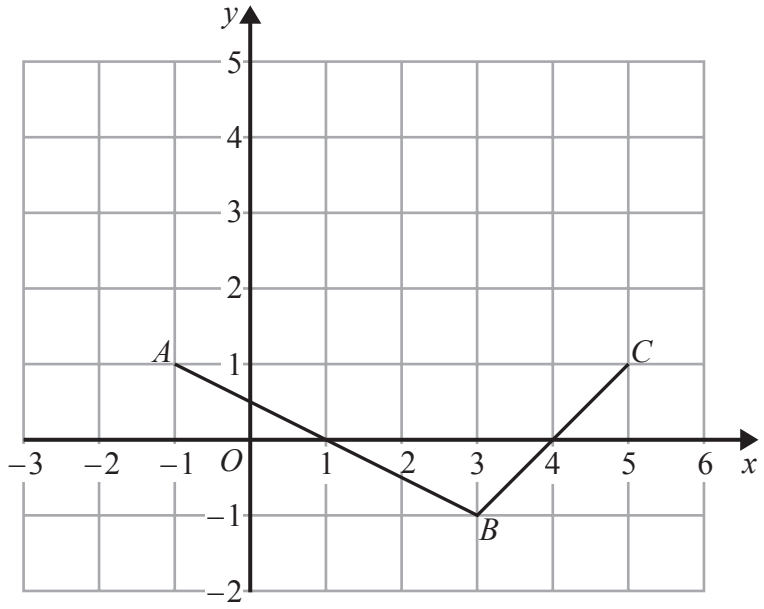
(c) What is the mathematical name for an angle of 90°?

.....

(1)

(Total for Question 2 is 3 marks)

3 The diagram shows the straight lines AB and BC drawn on a centimetre grid.



(a) Write down the coordinates of

(i) C

(..... , ...)

(ii) B

(..... , ...)

(2)

(b) On the grid, mark the point D so that $ABCD$ is a kite.

(1)

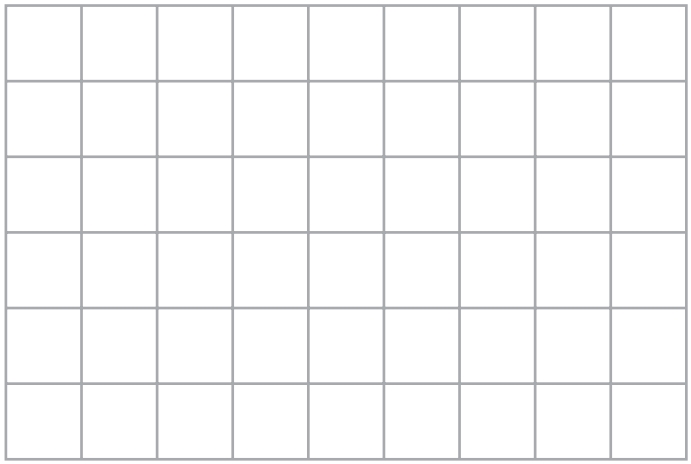
(c) Work out the gradient of AB.

.....

(2)

(Total for Question 3 is 5 marks)

4 (a) On the grid below, draw a parallelogram.



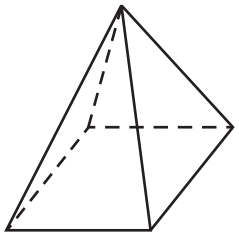
(1)

(b) What is the mathematical name for a polygon with 5 sides?

.....

(1)

The diagram shows a 3-D shape.



(c) (i) What is the mathematical name for this 3-D shape?

.....

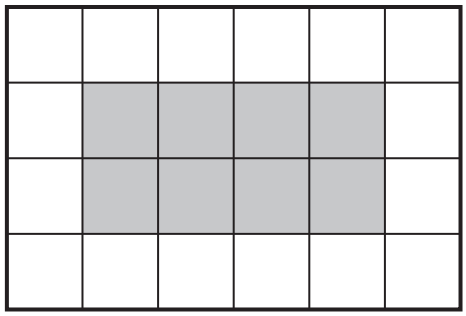
(ii) How many edges has the shape?

.....

(2)

(Total for Question 4 is 4 marks)

5 Rectangle **A** is made from centimetre squares.



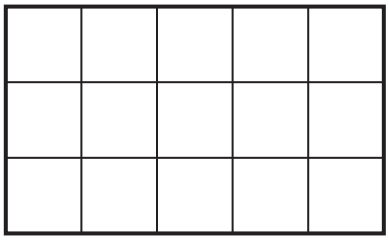
rectangle **A**

(a) What fraction of rectangle **A** is shaded?

.....

(1)

Rectangle **B** is made from centimetre squares.



rectangle **B**

(b) Shade 20% of rectangle **B**.

(1)

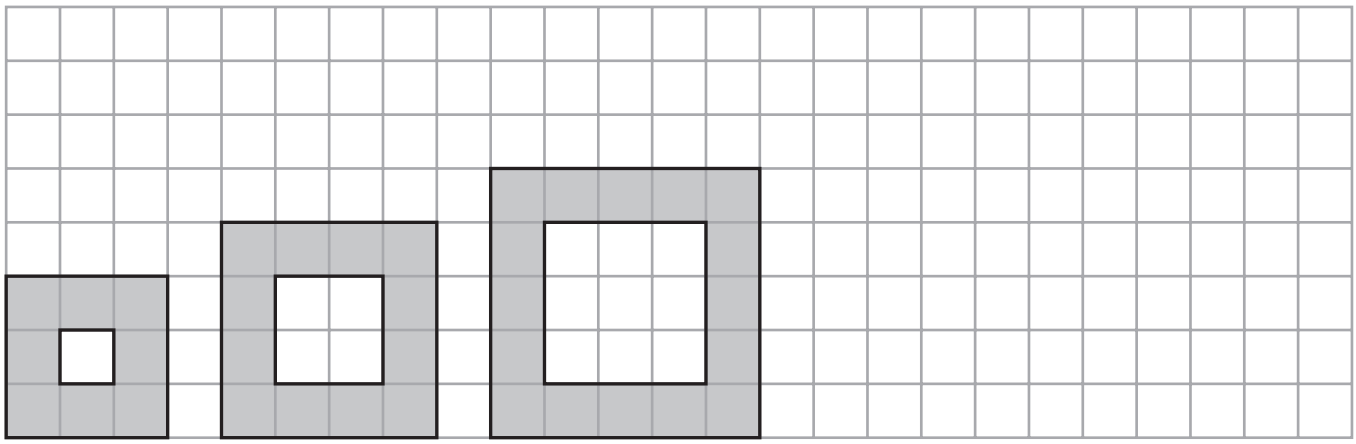
(c) Work out 30% of 185

.....

(2)

(Total for Question 5 is 4 marks)

6 Here is a sequence of shapes drawn on a square grid.



Shape number 1 **Shape number 2** **Shape number 3** **Shape number 4**

(a) On the grid, draw Shape number 4

(1)

The table shows the number of shaded squares in the first three shapes.

Shape number	1	2	3	4	5
Number of shaded squares	8	12	16		

(b) Complete the table to show the number of shaded squares in Shape number 4 and Shape number 5

(1)

(c) Work out the number of shaded squares in Shape number 9

.....

(2)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

The width of Shape number 1 is 3 squares.
The width of Shape number 2 is 4 squares.

(d) Find the width of Shape number 8

..... squares
(1)

The width of Shape number n is W squares.

(e) Write down a formula for W in terms of n.

.....
(2)

(Total for Question 6 is 7 marks)

7 (a) Put brackets in the following to make the calculation correct.

(i) $2 + 4 \times 6 - 3 = 33$

(ii) $2 + 4 \times 6 - 3 = 14$

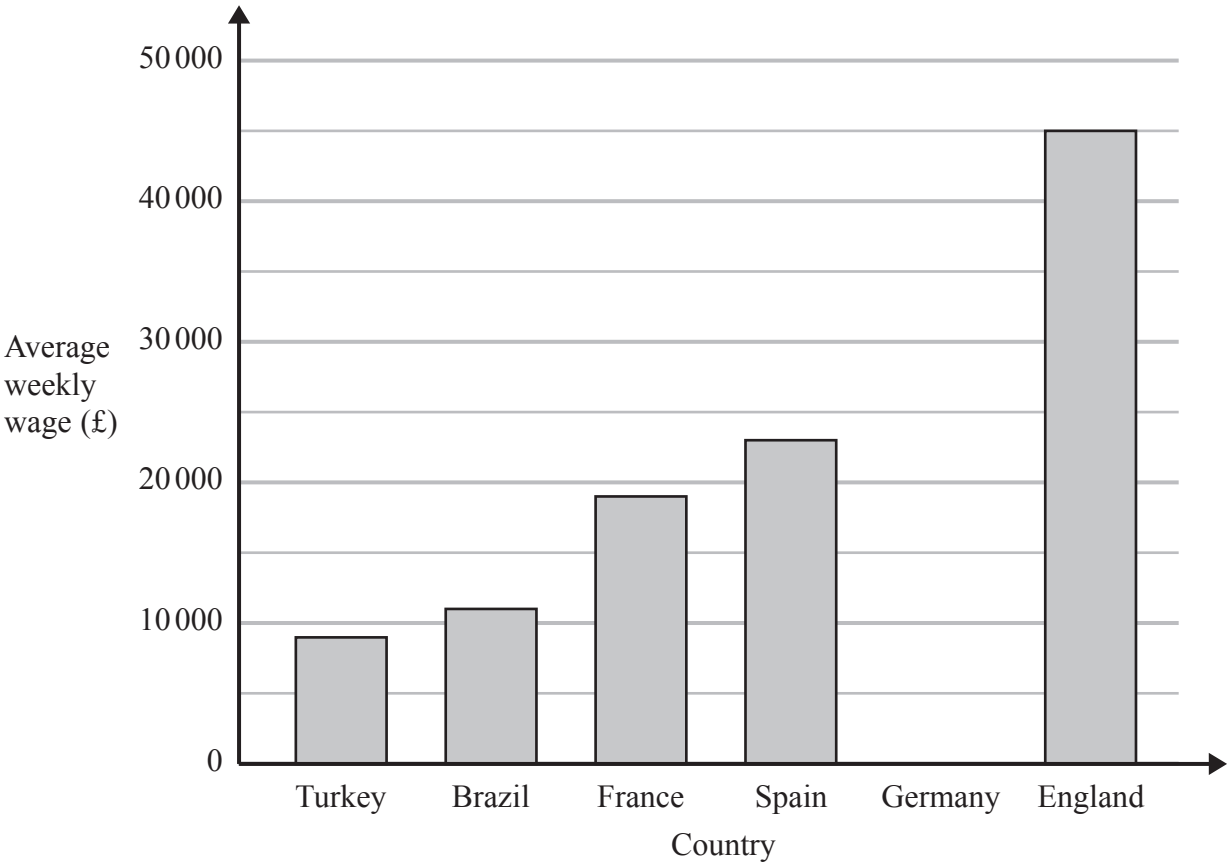
(2)

(b) Work out the value of $\frac{20 - 4}{2} - \frac{18}{6 - 3}$

.....
(2)

(Total for Question 7 is 4 marks)

8 The bar chart shows information about the average weekly wage of top football players in five countries.



(a) Find the average weekly wage of top football players in England.

£ .....

(1)

(b) In which of these countries is the average weekly wage of top football players £19 000?

.....

(1)

The average weekly wage of top football players in Germany is £28 000

(c) Show this information on the bar chart.

(1)

The table shows the average income per year for top football clubs in each of six countries.

Country	Brazil	England	France	Germany	Spain	Turkey
Income (£ million)	36	155	48	90	78	26

(d) Find the range.

£ ..... million

(2)

The table below shows information about the number of goals scored by a football club in each of its last 45 games.

Number of goals	**Number of games**
0	7
1	14
2	8
3	10
4	5
5	0
6	1

(e) Find the median number of goals.
Show your working clearly.

.....

(2)

(Total for Question 8 is 7 marks)

9 The table shows temperatures recorded on five planets.

Planet	Venus	Earth	Mars	Jupiter	Uranus
Temperature (°C)	458	14	−55	−153	−214

(a) What is the difference between the temperatures recorded on

(i) Earth and Mars,

..... °C

(ii) Jupiter and Mars?

..... °C

(2)

A temperature recorded on Pluto is 693°C less than the temperature recorded on Venus.

(b) Work out the temperature on Pluto.

..... °C

(1)

(c) Work out the mean of

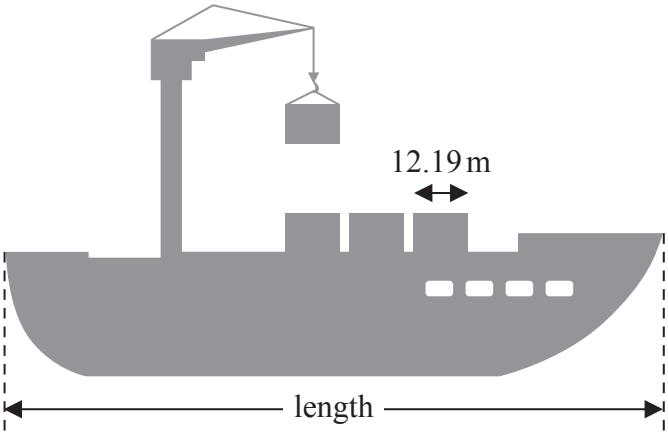
458 14 −55 −153 −214

.....

(2)

(Total for Question 9 is 5 marks)

10 The diagram shows a picture of a ship and four containers.
The ship and the containers are drawn to the same scale.



The length of each container is 12.19 m.

(a) Work out an estimate for the length of the ship.
Show your working clearly.

..... m

(2)

A different container is a cuboid with length 6.2 m, width 2.4 m and height 2.5 m.

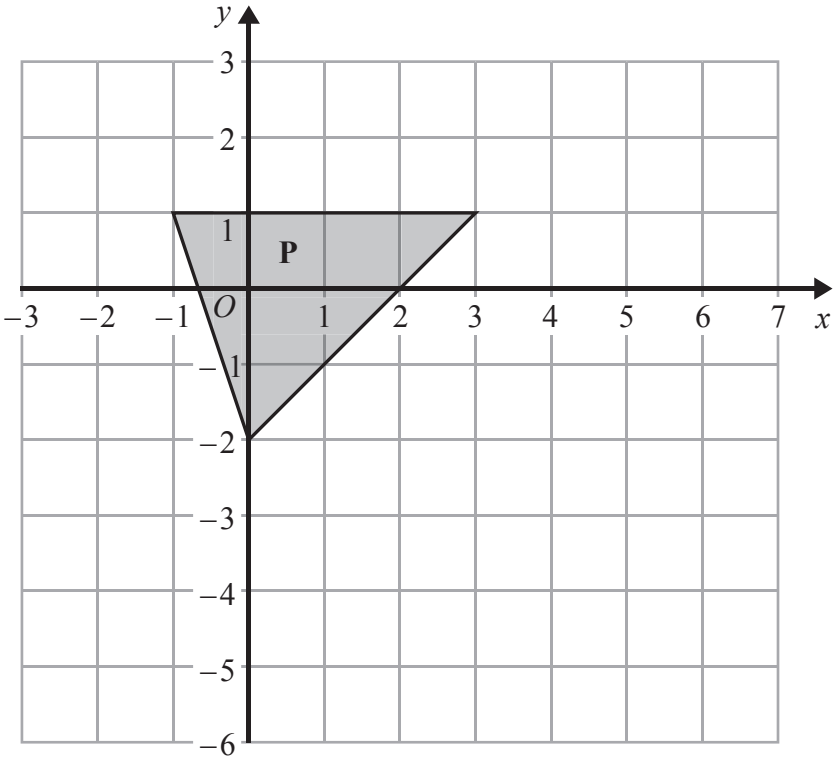
(b) Work out the volume of this container.

..... m^3

(2)

(Total for Question 10 is 4 marks)

11 The diagram shows triangle **P** drawn on a centimetre grid.



(a) Work out the area of triangle **P**.

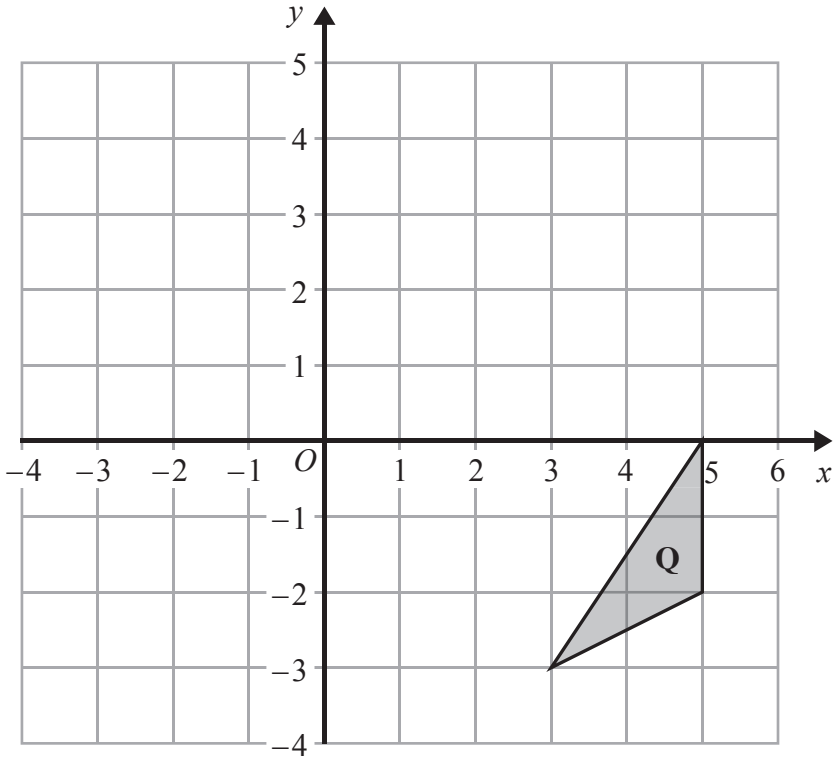
..... cm^2

(1)

Triangle **E** is an enlargement of triangle **P** with centre O and scale factor 2

(b) On the grid, draw triangle **E**.

(2)



(c) On the grid, reflect triangle **Q** in the line $x = 1$

(2)

(Total for Question 11 is 5 marks)

12 The weekly rent for a holiday apartment is £530, which is the same as 715.5 euros.
The weekly rent for a holiday cottage is £750

Using the same rate of currency exchange, work out the weekly rent for the cottage in euros.

..... euros

(Total for Question 12 is 3 marks)

13 (a) Simplify $9x^2 + 2x^2 - 5x^2$

.....

(1)

$e = 2f - 5g$

(b) Find the value of e when $f = 12$ and $g = 3$

$e =$ .....

(2)

$e = 2f - 5g$

(c) Find the value of f when $e = 8$ and $g = -6$

$f =$ .....

(3)

(Total for Question 13 is 6 marks)

14 The pie chart shows information about the ages in years of the population of Bangladesh.

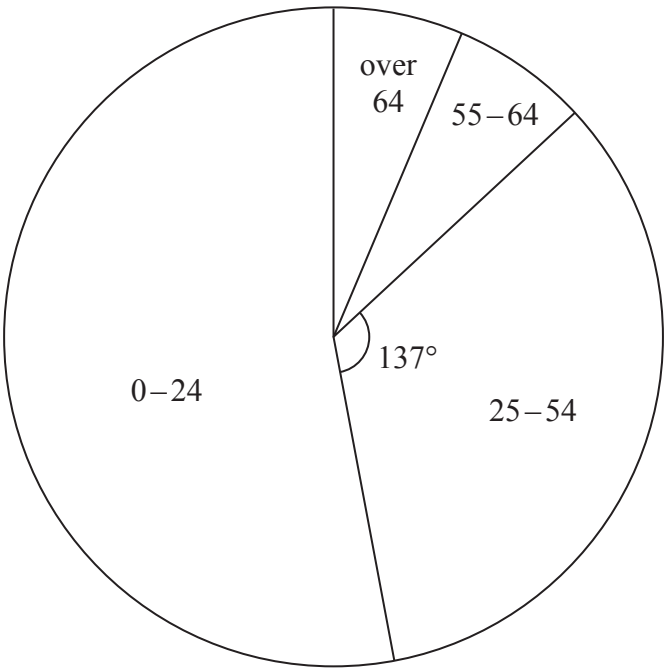


Diagram **NOT** accurately drawn

The angle in the pie chart for the 25 – 54 age group is 137°

(a) Work out the percentage of the population of Bangladesh in the 25 – 54 age group.
Give your answer correct to 1 decimal place.

..... %

(2)

5% of the population of Bangladesh are in the over 64 age group.

(b) Work out the size of the angle in the pie chart for the over 64 age group.

..... °

(2)

(Total for Question 14 is 4 marks)

15 (a) (i) Find $\sqrt{95}$

Write down all the figures on your calculator display.

.....

(ii) Write your answer to (a)(i) correct to 2 decimal places.

.....

(2)

(b) (i) Use your calculator to work out the value of

$$\frac{16^2}{3 \times 12 - \pi}$$

Write down all the figures on your calculator display.

.....

(ii) Write your answer to (b)(i) correct to 3 significant figures.

.....

(3)

(Total for Question 15 is 5 marks)

16 Here is a list of five fractions.

$$\frac{7}{6} \qquad \frac{9}{5} \qquad \frac{3}{7} \qquad \frac{5}{9} \qquad \frac{10}{11}$$

(a) (i) Write down the smallest fraction in the list.

.....

(ii) Write down the largest fraction in the list.

.....

(2)

(b) Complete the statement below to show a fraction that is equivalent to $\frac{5}{9}$

$$\frac{5}{9} = \frac{\ldots\ldots}{63}$$

(1)

(Total for Question 16 is 3 marks)

17 $P \cup Q = \{a, b, c, d, e, f\}$

$P \cap Q = \{e\}$

$a \in P, \quad c \in Q, \quad f \notin P, \quad \{b, d\} \cap Q = \varnothing$

(a) List the members of the set P.

.....

(2)

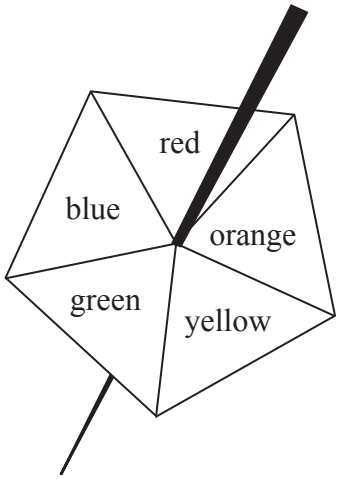
(b) List the members of the set Q.

.....

(1)

(Total for Question 17 is 3 marks)

18 Here is a biased five-sided spinner.



When the spinner is spun, it can land on red, orange, yellow, green or blue.
The probabilities that it lands on red, orange and yellow are given in the table.

Colour	red	orange	yellow	green	blue
Probability	0.4	0.2	0.1		

The probability that the spinner lands on green is the same as the probability that the spinner lands on blue.

Michael spins the spinner once.

(a) Work out the probability that the spinner lands on green.

.....

(3)

Jenny spins the spinner 200 times.

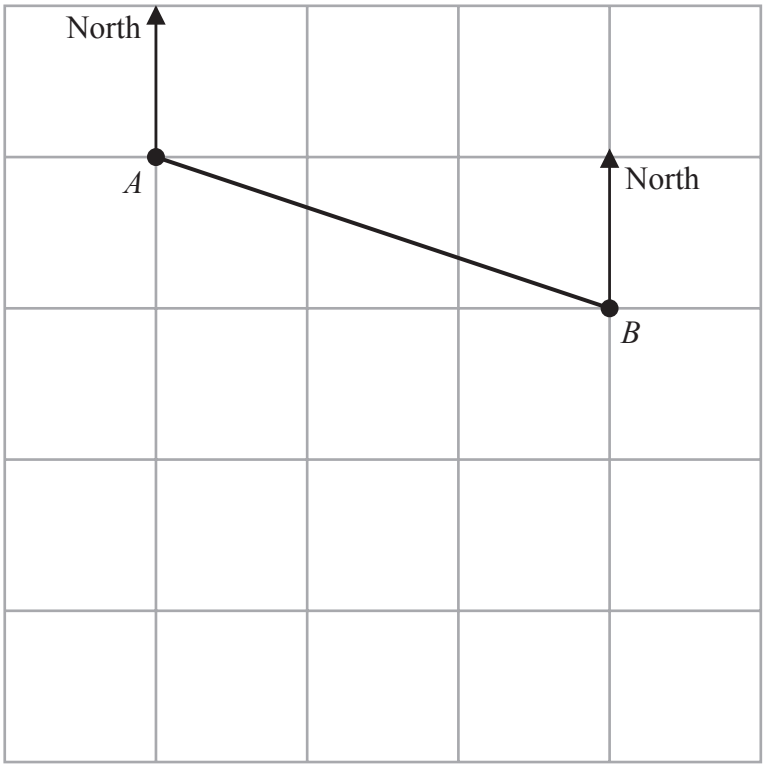
(b) Work out an estimate for the number of times the spinner lands on red.

.....

(2)

(Total for Question 18 is 5 marks)

19



The diagram shows point A and point B on a map.
The point C is due south of A
The bearing of C from B is 235°

(a) Mark the point C on the map.

(2)

The bearing of a point D from B is 168°

(b) Find the bearing of B from D

..... °

(2)

Gordon measures a length on the map as 6.3 cm correct to 1 decimal place.

(c) Write down the lower bound for this length.

..... cm

(1)

(Total for Question 19 is 5 marks)

20 Solve the simultaneous equations

$$5x - 2y = 33$$

$$5x + 8y = 18$$

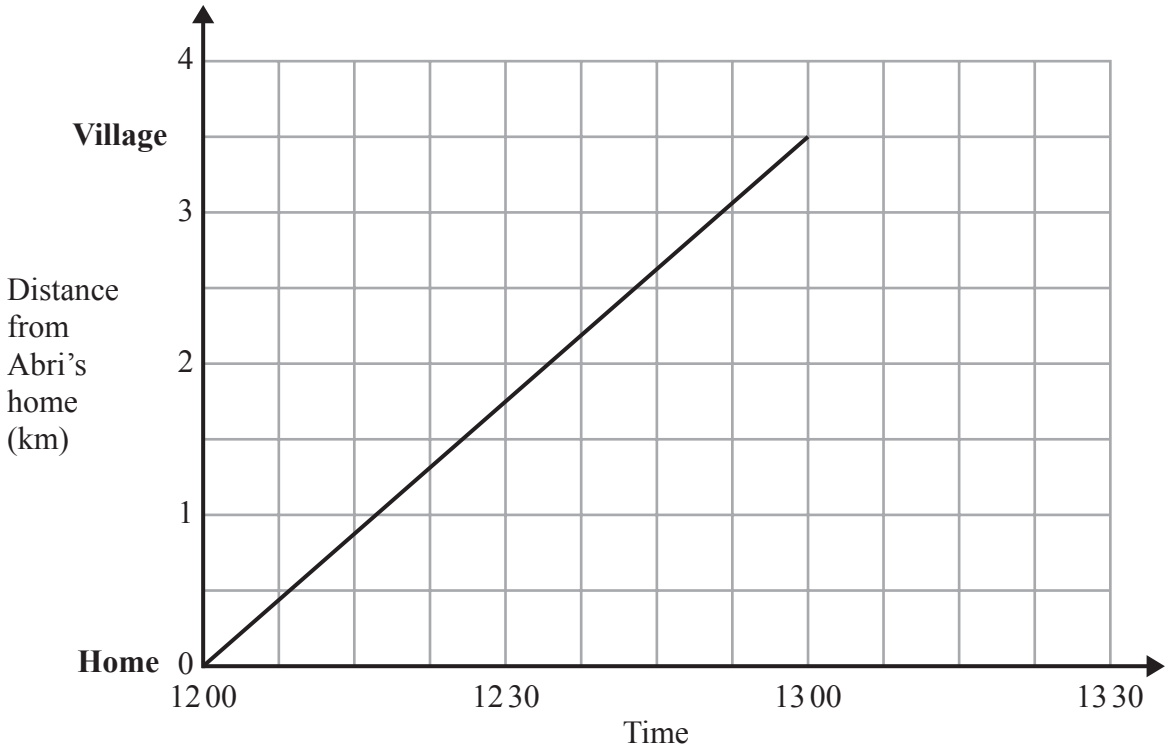
Show clear algebraic working.

$x =$ .....

$y =$ .....

(Total for Question 20 is 3 marks)

21 Abri walks along a path from her home to a local village.
Here is the distance-time graph for her journey from her home to the village.



Benito leaves the village at 12 30 and walks at a constant speed along the same path to Abri's home.
He arrives at Abri's home at 13 15

(a) Show the information about Benito's journey on the grid.

(2)

(b) How far from the village were Abri and Benito when they passed each other?

..... km

(1)

(Total for Question 21 is 3 marks)

Turn over for question 22

22 The diagram shows a ladder, EF, leaning against a vertical wall.
The foot, E, of the ladder is on horizontal ground.

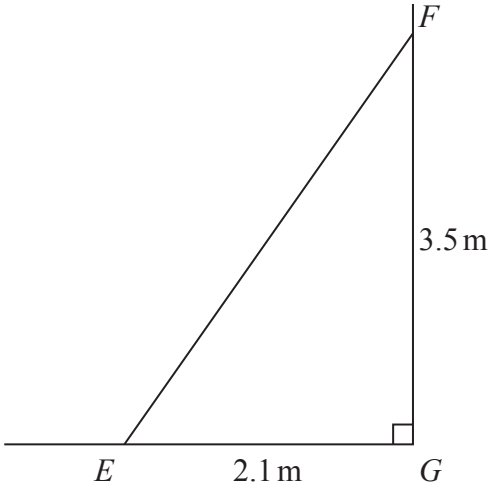


Diagram **NOT** accurately drawn

$EG = 2.1\,\text{m}$ $FG = 3.5\,\text{m}$ angle $EGF = 90°$

(a) Work out the length of the ladder.
Give your answer correct to 1 decimal place.

..... m

(3)

(b) Work out the size of angle EFG.
Give your answer correct to the nearest degree.

..... °

(3)

(Total for Question 22 is 6 marks)

TOTAL FOR PAPER IS 100 MARKS