

## GCSE EQUIVALENT FOUNDATION MATHEMATICS CALCULATOR PAPER

**SAMPLE PAPER 3**  
**Calculator and**  
**Non calculator**  
**With answers.**

NAME .....

SURNAME .....

SCHOOL/UNIVERSITY  
APPLIED FOR .....

CONTACT NUMBER .....

DATE .....

### Time Allowed 1 Hour

- 1 In addition to this paper you may need
- 2 A ruler
- 3 Coloured pens ( for drawing graphs)

### Instructions to Candidates

- 1 Write your name and other details in the spaces above
- 2 Answer all questions in the spaces provided
- 3 Additional sheets may be used
- 4 Calculators **MAY BE USED** in this paper

### Information to candidates

- 1 The marks available are given at the end of each question and part questions eg (2)
- 2 There are 17 question in this paper

### Advice to candidates

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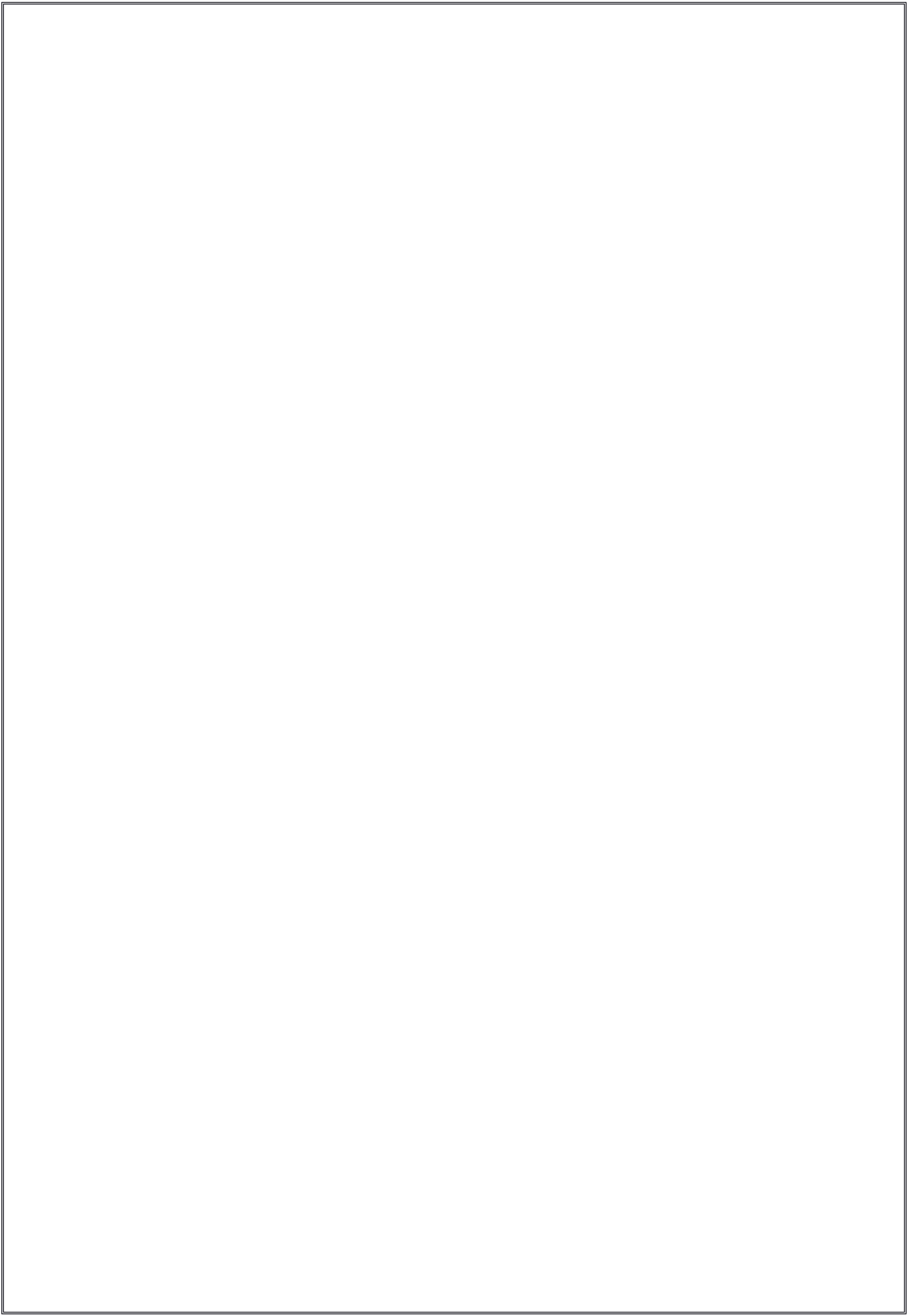
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Total	

Examiners  
Signature

Percentage %

Equivalency Testing Office 72 Walton Gardens,  
Hutton, Essex, CM13 1EP





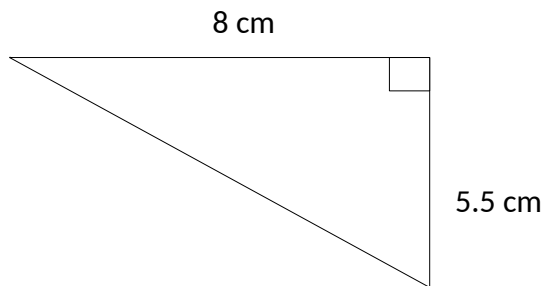
Answer ALL SEVENTEEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1.

Diagram NOT  
accurately drawn



Work out the area of the right angled triangle.

.....  
(Total 2 marks)

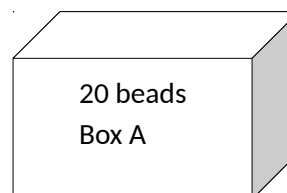
2. A spinner can land on red or blue or pink.  
The table shows the probabilities that the spinner will land on red or on blue.

Colour	red	blue	pink
Probability	0.58	0.30	

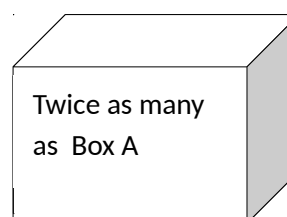
Work out the probability that the spinner will land on pink.

.....  
(Total 2 marks)

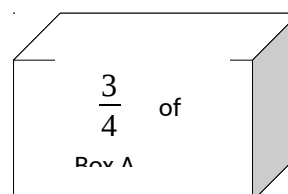
3. There are 20 beads in box A.



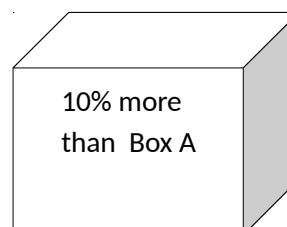
In box B there are twice as many beads as in box A.



In box C there are  $\frac{3}{4}$  of the number of beads as in box A.



In box D there are 10% more beads than in box A.



Work out the total number of beads in the four boxes.

.....beads  
(Total 4 marks)

---

4. Here is a list of ingredients to make melon sorbet for 6 people.

Melon Sorbet for 6 people

800g melon  
4 egg whites  
 $\frac{1}{2}$  lime  
100g caster sugar

Trevor makes melon sorbet for 18 people.

- (a) Work out how much caster sugar he uses.

.....g  
(2)

Helen makes melon sorbet.  
She uses 2 limes.

- (b) Work out how many people she makes melon sorbet for.

.....  
(2)  
(Total 4 marks)

---

5. Norman got 48 out of 70 in a test.

Work out 48 as a percentage of 70.

.....%

(Total 2 marks)

6. Use your calculator to work out.

$$\frac{13.7+5.86}{2.54 \times 3.17}$$

Write down all the figures on your calculator display.  
You must give your answer as a decimal.

.....

(Total 2 marks)

7. A family went on holiday to Miami.  
They travelled from London by plane.

The distance from London to Miami is 7120 km.  
The plane journey took 8 hours.

Calculate the average speed of the plane.

.....

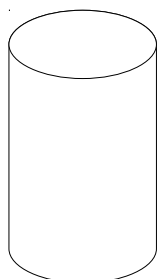
(Total 2 marks)

8. Julie buys 60 bags. She pays £3 for each bag  
Julie sells  $\frac{1}{2}$  of the bags for £5 each.  
She sells  $\frac{1}{3}$  of the bags for £4 each  
Julie wants to make £75 profit.  
How much should she sell each of the remaining bags for?

.....  
(4)

(Total 4 marks)

9.



A water container in the shape of a cylinder contains  
19.5 litres of water in it.

A small plastic cup holds 210 ml of water.

Work out how many cups of water the container holds.

.....  
(Total 3 marks)

10. Here are the first 4four terms of a number sequence.

3      7      11      15

Write down the next two terms in the sequence.

.....  
(1)

Explain in words how you got your answer.

.....  
(1)

Work out the difference between the 10<sup>th</sup> and the 15<sup>th</sup> term in the sequence.

.....

(2)

(Total 4 marks)

11. There are 100 teachers at Zoe's school.  
Zoe found out the age of each teacher.

The table gives this information about her results.

Age ( <i>A</i> years)	Frequency
$20 < A \leq 30$	26
$30 < A \leq 40$	35
$40 < A \leq 50$	21
$50 < A \leq 60$	12
$60 < A \leq 70$	6

- (a) Complete the cumulative frequency table.

Age ( <i>A</i> years)	Cumulative Frequency
$20 < A \leq 30$	26
$30 < A \leq 40$	
$40 < A \leq 50$	
$50 < A \leq 60$	
$60 < A \leq 70$	

(1)

- (b) On the grid opposite, draw the cumulative frequency graph from your table.

(2)

- (c) Use your graph to find an estimate for the median age.

.....years

(1)

- (d) Use your graph to find an estimate for the number of these teachers  
who are **older** than 56 years.



.....

(1)

(e) On your graph clearly show the upper and lower quartile values.

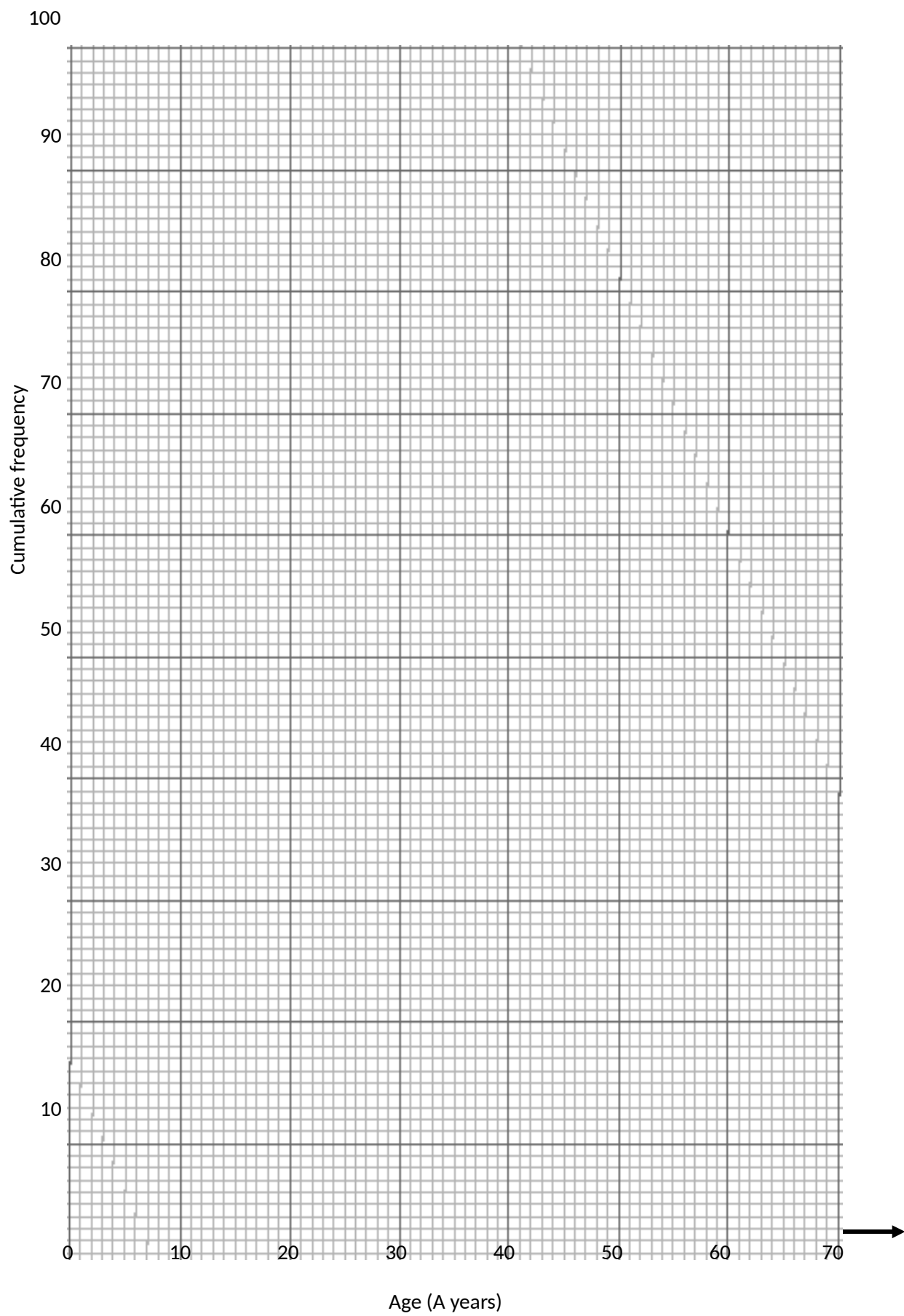
Upper quartile value .....

Lower quartile value .....

(2)

(Total 7 marks)





12. There is a red dice with 6 sides, numbered 1 to 6.  
There is a blue dice with 6 sides numbered 1 to 6.

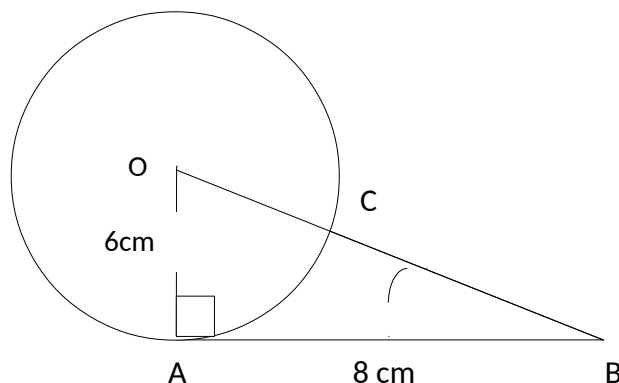
Harry throws both dice at the same time.

What is the probability that a 6 will be showing face up on both dice.

.....  
(Total 3 marks)

13.

Diagram NOT  
accurately drawn



In the diagram, O is the centre of the circle.

A and C are points on the circumference of the circle.

BCO is a straight line.

AB = 8 cm and AO = 6 cm.

- (a) Work out the length of OB.

.....cm  
(2)

- (b) Work out the length BC.

.....  
(2)

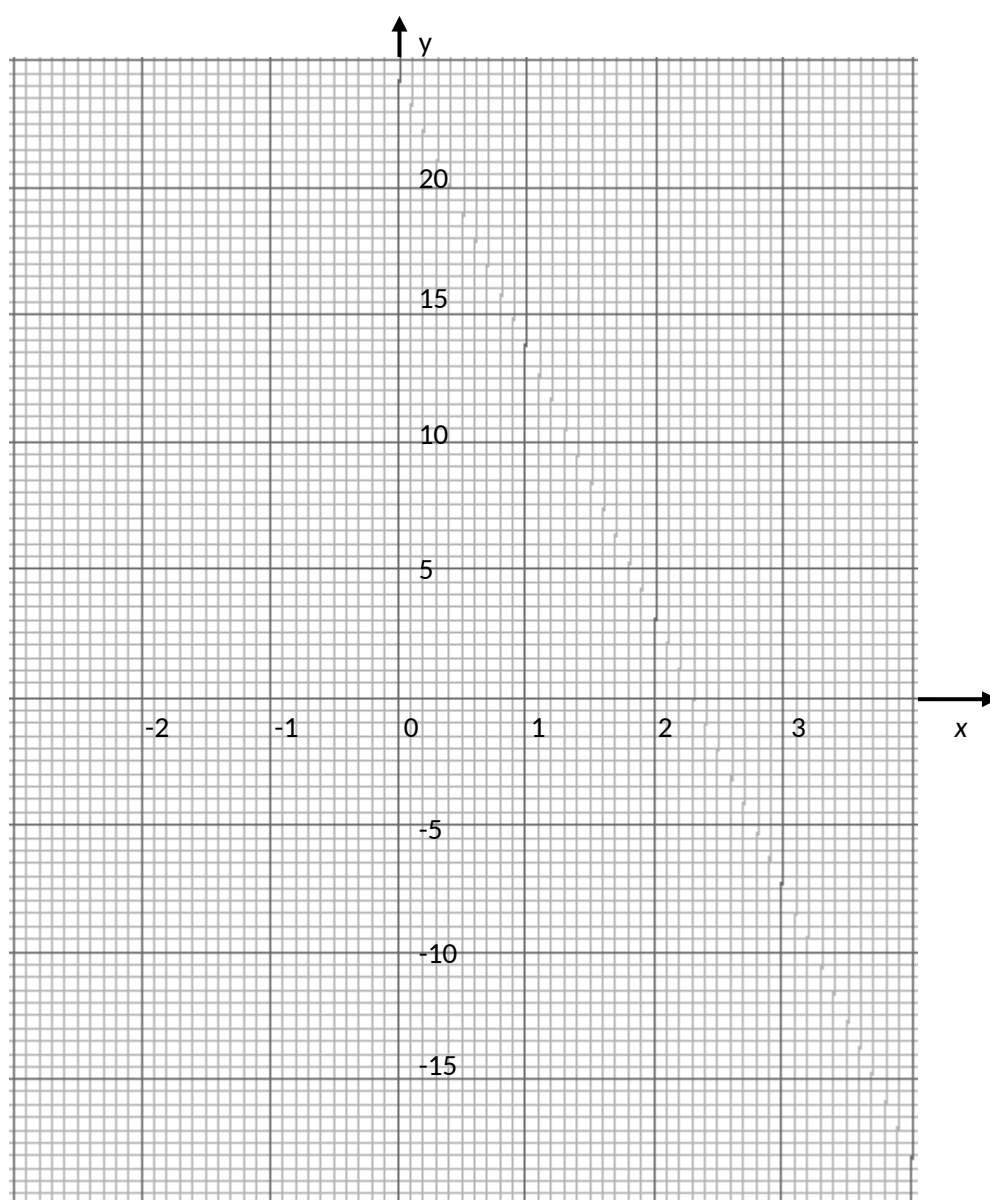
(Total 4 marks)

14. (a) Complete the table of values for  $y = 7x$

X	-2	-1	0	1	2	3
y			0			

(2)

- (b) On the grid draw the graph of  $y = 7x$  for values of  $x$  from -2 to 3



(2)

(Total 4 marks)

15. (a) Simplify  $3(x + 5)$

.....  
(1)

(b) Solve  $x + 8x = 18$

.....  
(1)

(c) Solve  $5w - 6 = 10$

.....  
(1)

(d) Solve  $x/4 = 3$

.....  
(1)

---

(Total marks 4)

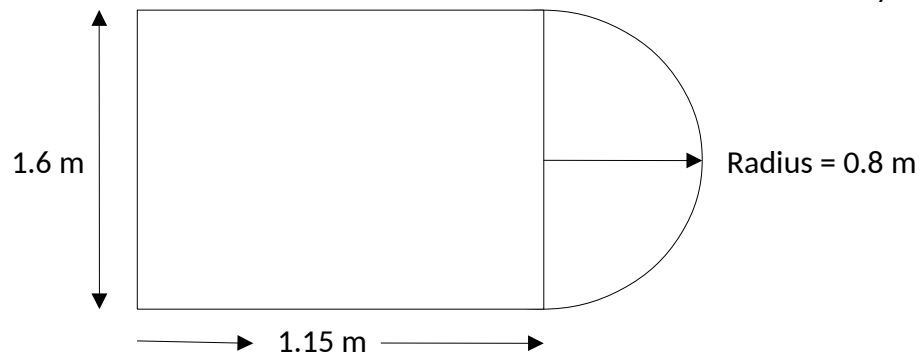
16. A car depreciates in value by 10% per annum.  
The cost of the car when new was £14000.

Work out its value after 4 years.

(Total 4 marks)

17.

Diagram NOT  
accurately drawn



The diagram shows a mat in the shape of a semi-circle and a rectangle.

The width of the mat is 1.6 metres.

The length of the mat is 1.95 metres.

(a) Calculate the area of the mat.

.....m<sup>2</sup>  
(4)

If the cost of the mat is £7.50 per square metre.

(b) Calculate the cost of the mat.

£.....

(2)

(Total 6 marks)

TOTAL MARKS FOR THIS PAPER 61

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FOUNDATION MATHEMATICS  
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<b>Percentage %</b>

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Answer ALL SEVENTEEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1. A box contains milk chocolates and dark chocolates only.  
The number of milk chocolates to the number of dark chocolates is in the ratio of 3 : 1  
There are 24 milk chocolates.  
Work out the total number of chocolates.

.....  
(Total 2 marks)

2. (a) Simplify  $p \times p \times p \times p$

.....  
(1)

- (b) Simplify  $2c \times 3d$

.....  
(1)

- (c) Simplify  $3xy + 4xy$

.....

(1)

(Total 3 marks)

3. Lucy spins a four-sided spinner and a five-sided spinner.

The four-sided spinner is labelled 2, 4, 6, 8

The five-sided spinner is labelled 1, 3, 5, 7, 9

Lucy adds the score on the four-sided spinner to the score on the five-sided spinner.  
She records the possible total scores in a table.

4-sided spinner

+	2	4	6	8
1	3	5	7	9
3	5	7	9	
5	7	9		
7	9			
9				

5-sided spinner

- (a) Complete the table of possible total scores.

(1)

- (b) Write down all the ways in which Lucy can get a total score of 11

(     ,     ) (     ,     ) (     ,     ) (     ,     )

(2)

Both spinners are fair.

- (c) Find the probability that Lucy's total score is less than 6.

.....

(2)

(Total 5 marks)

4. Here are the first five terms of an arithmetic sequence.

2      6      10      14      18

(a) Find, in terms of  $n$ , an expression for the  $n$ th term of this sequence.

.....

(2)

(b) An expression for the  $n$ th term of another sequence is  $10 - n^2$

If the first number in the sequence is 1 then  $10 - 1^2 = 9$

(i) Find the third term of this sequence.

.....

(ii) Find the fifth term of this sequence.

.....

(2)

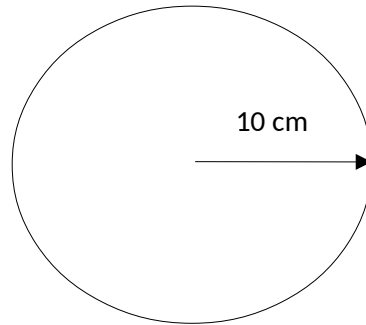
(Total 4 marks)

5. Work out an estimate for  $\frac{3870}{236 \times 4.85}$

.....  
(Total 2 marks)

6.

Diagram NOT  
accurately drawn



The radius of a circle is 10 cm.

Work out the area of this circle.

Use  $\pi = 3$

.....  
(Total 2 marks)

7. Peter drives 175 miles to a meeting.  
His company pays him 30p for each mile.

Work out how much the company pays Peter.

.....

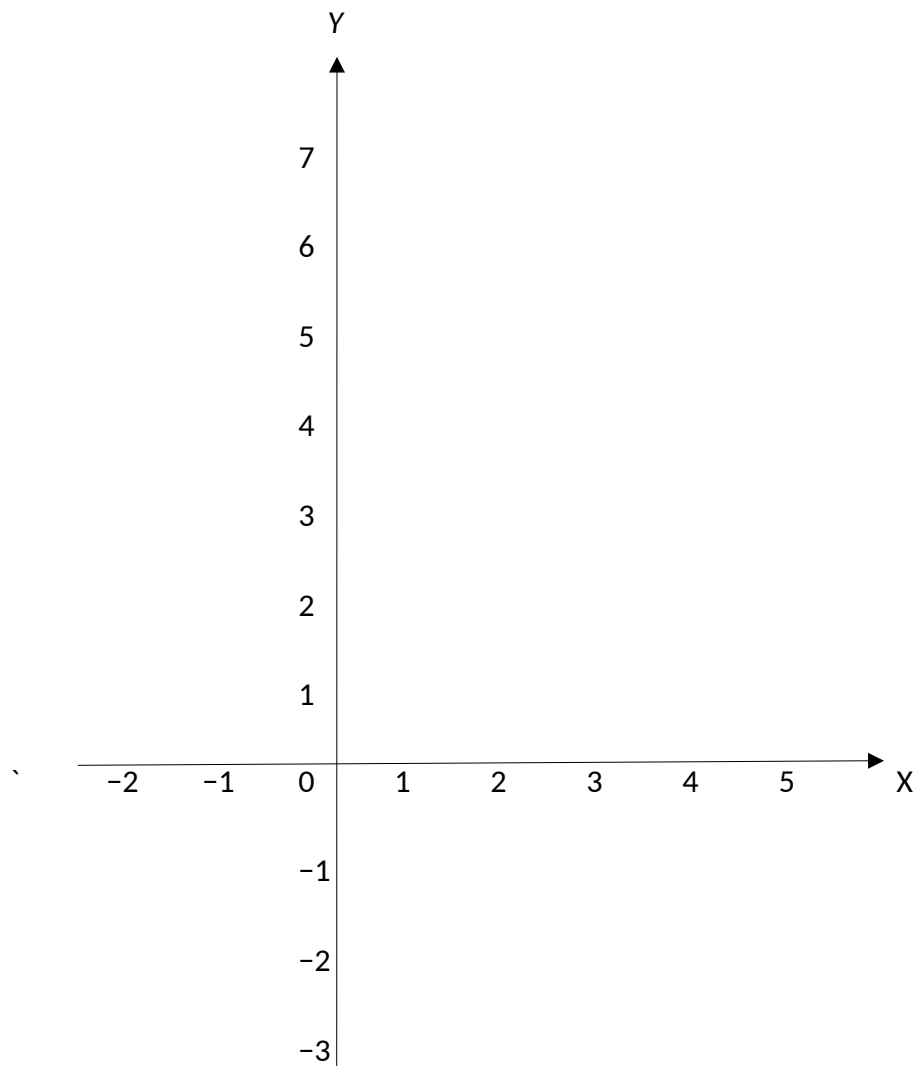
(Total 3 marks)

8. (a) Complete the table of results for the graph of  $y = 4 - X$  for values of  $x$  from  $-2$  to  $5$

X	-2	-1	0	1	2	3	4	5
y								

(2)

- (b) From the table of results plot the points on the given axis and draw the graph.

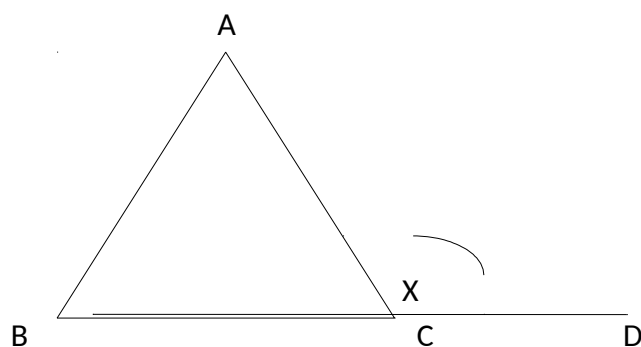


(2)

(Total 4 marks)

9.

Diagram NOT  
accurately drawn



ABC is an equilateral triangle.

BCD is a straight line.

(a) work out the size of the angle marked X.

.....

(2)

(b) Give a reason for your answer.

.....

.....

(1)

(Total 3 marks)

10. In the formula  $t = \frac{v}{5} + 2$

If the value of  $v = 20$ .

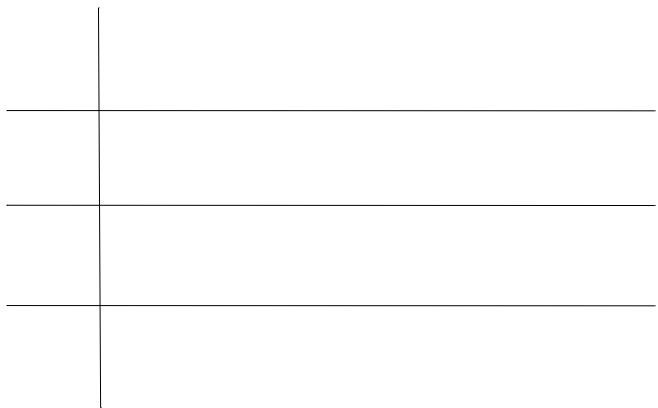
Work out the value of  $t$ .

.....  
(Total 2 marks)

11. Mark plays golf.  
Here are 15 of his scores.

69	78	82	86	77
83	91	77	92	80
74	81	83	77	72

- (a) Draw an ordered stem and leaf diagram to show this information.  
You must include a key.



Key: \_\_\_\_\_

(3)

- (b) Write down the mode.

.....  
(1)

(c) Write down the median value.

.....  
(1)

(Total 5 marks)

12. Elizabeth bought a van.  
The total cost of the van was £6000 **plus** VAT at 20%

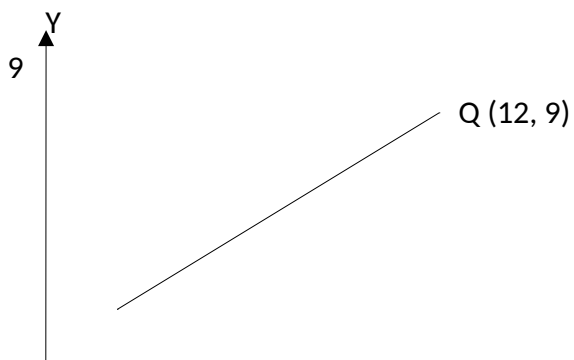
Elizabeth paid £3200 when she got the van.  
She paid the rest of the total cost of the van in 10 equal monthly payments.

Work out the amount of each monthly payment.

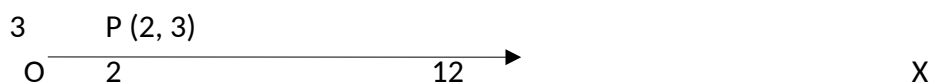
£.....  
(Total 5 marks)

13.

Diagram not  
accurately drawn







P is the point with the coordinates (2, 3).

Q is the point with the coordinates (12, 9).

Work out the coordinates of the midpoint of the line PQ.

(.....)

(Total 2 marks)

14. (a) Expand and simplify  $3(x + 5) + 2(5x - 6)$

.....  
(2)

(b) Simplify  $2(x + 4)$

.....  
(1)

(c) Factorise  $5x + 10$

.....

(1)

(d) Factorise  $2x + 2y$

.....

(2)

(Total 6 marks)

---

15. (a) Work out  $2\frac{17}{20} - 1\frac{2}{5}$

.....

(3)

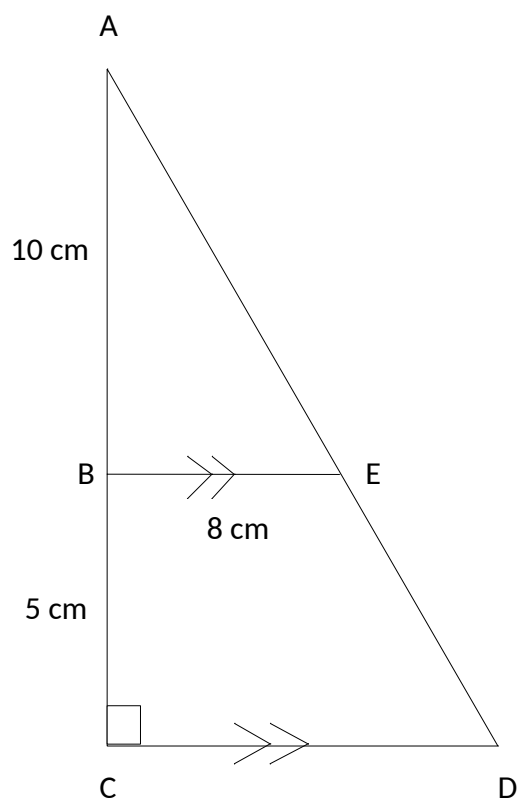
(b) Work out  $2\frac{2}{3} \times 1\frac{3}{4}$

.....  
(3)

(Total 6 marks)

16.

Diagram NOT  
accurately drawn



ABC and AED are straight lines.

BE is parallel to CD.

Angle ACD is  $90^\circ$

AB = 10cm

BC = 5 cm

BE = 8 cm

(a) Work out the area of the triangle ABE.

.....  
(2)

(b) If  $CD = 12$  work out the area of the trapezium BEDC.

.....  
(2)

(c) Write down the total area of the 2 shapes

.....  
(1)

(Total 5 marks)

17. Felicity asked 100 students how they came to school one day.  
Each student walked or came by bicycle or came by car.

49 of the 100 students are girls.

10 of the girls came by car.

16 boys walked

21 of the 41 students who came by bicycle are boys.

Complete the two way table.

	Walked to school	Came by bicycle	Came by car	Total
Girls				
Boys				
Total				

(Total 4 marks)

TOTAL MARKS FOR THIS PAPER 63

ANSWER SHEET

CALCULATOR PAPER

NON-CALCULATOR PAPER

1	$8 \times 5.5 = 44$ $44 \div 2 = 22\text{cm}^2$	1	24 milk chocolates = 3 8 dark chocolates = 1 Total 24 chocolates
2	Ans. = 0.12 as all probabilities add up to 1.	2	$P^4 \ 6cd \ 7xy$
3	Box (a) = 20 Box (b) = 40 Box (c) = 15 Box (d) = 22	3	Complete the table (b) (3, 8) (5, 6) (7, 4) (9, 2) (c) less than 6 = $\frac{3}{20}$
4	(a) 300g (b) 24 people	4	(a) Nth term is $4n - 1$ (b) 1 and - 15
5	$48 \div 70 = 0.6857142$ $0.6857142 \times 100 = 69\%$	5	$\frac{4000}{250 \times 5} = \frac{80}{25}$ Ans 3 approx.
6	$\underline{13.7 + 5.86 = 19.56}$ $2.54 \times 3.17 = 8.0518$ Ans. = 2.429270474	6	$3 \times 10 \times 10 = 300$
7	$7120 \div 8 = 890 \text{ km/hr}$	7	$175 \times 30 = \text{£}64.75$
8	<u>60 bags @ £3 = £180</u> 30 bags @ £5 = £150	8	(a) Complete the table 6 5 4 3 2 1 0 -1

	20 bags @ £4 = £80 =£230 Profit of £50 so far 10 bags @ £2.5 = £25 Total profit is now £75		Draw the straight line graph																				
9	19.5 litres = 19500ml $19500 \div 210 = 92.857$ Ans. 92 cups.	9	$X = 120$ Angles on a straight line = 180 Interior angle = 60																				
10	Next two numbers 19 and 23 Continue to add 4 $10^{\text{th}} = 39$ $15^{\text{th}} = 59$ Difference = 20	10	$t = \frac{20}{5} + 2$ $t = 4 + 2$ $t = 6$																				
11	(a) CF table 26 61 82 94 100 (b) Draw the graph (c) 37/38 (d) 11teachers (e) Upper = 47 Lower = 29	11	<table><tr><td>6</td><td>9</td></tr><tr><td>7</td><td>2 4 7 7 7 8</td></tr><tr><td>8</td><td>0 1 2 3 3 6</td></tr><tr><td>9</td><td>1 2</td></tr></table> (b) = 77 (c) = 80	6	9	7	2 4 7 7 7 8	8	0 1 2 3 3 6	9	1 2												
6	9																						
7	2 4 7 7 7 8																						
8	0 1 2 3 3 6																						
9	1 2																						
12	$\frac{1}{6} \times \frac{1}{6} = \frac{1}{36}$	12	$£6000 + \text{VAT} = £7200$ $£7200 - £3200 = £4000$ $£4000 \div 10 = £400$																				
13	Pythagoras $a^2 = b^2 + c^2$ $a^2 = 8^2 + 6^2$ $a^2 = 100$ so $a = 10$ CB = 4 (10 - 6) 6 = radius	13	Mid point of line (7, 6)																				
14	Complete table. $Y = - 14 - 7 \ 0 \ 7 \ 14 \ 21$ Draw he straight line graph	14	(a) $3x + 15 + 10x - 12$ $13x + 3$ (b) $2x + 8$ (c) $5(x + 2)$ (d) $2(x + y)$																				
15	$3x + 15$ $X = 2$ $W = 5.2$ $X = 12$	15	(a) $\frac{57}{20} - \frac{7}{5} = \frac{57}{20} - \frac{28}{20} = \frac{29}{20}$  (b) $\frac{8}{3} \times \frac{7}{4} = \frac{56}{12} = 4 \frac{2}{3}$																				
16	Value after year 1 = £12600 Value after year 2 = £11340 Value after year 3 = £10206 Value after year 4 = £9185.4	16	Area of triangle = $10 \times 8 \div 2$ Area = 40 Area of trapezium $0.5 \times (8 + 12) \times 5$ Area = 50 Total area = 90																				
17	Area of rectangle = $1.6 \times 1.15 = 1.84$ Area of semicircle = $3.14 \times .8 \times .8 \div 2 = 1.00$ Total Area = 2.84 (b) $2.84 \times 7.5 = £21.3$	17	<table><tr><td></td><td>Walk</td><td>Cycle</td><td>Car</td><td>Tot</td></tr><tr><td>Girls</td><td>19</td><td>20</td><td>10</td><td>49</td></tr><tr><td>Boys</td><td>16</td><td>21</td><td>14</td><td>51</td></tr><tr><td>Tot</td><td>35</td><td>41</td><td>24</td><td>100</td></tr></table>		Walk	Cycle	Car	Tot	Girls	19	20	10	49	Boys	16	21	14	51	Tot	35	41	24	100
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