

# GCSE Mathematics

## Practice Tests: Set 9

### Paper 1F (Non-calculator)

**Time: 1 hour 30 minutes**

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

#### 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 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.

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

- 1** Write  $\frac{4}{5}$  as a decimal.

.....  
**(Total for Question 1 is 1 mark)**

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- 2** Write  $\frac{35}{45}$  as a fraction in its simplest form.

.....  
**(Total for Question 2 is 1 mark)**

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- 3** Write these decimals in order of size.

4.81      4.013      4.85      4.807      4.02

Start with the smallest decimal.

.....  
**(Total for Question 3 is 1 mark)**

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- 4** Find the sum of  $\frac{13}{20}$  and 0.72.  
Give your answer as a decimal.

.....  
**(Total for Question 4 is 2 marks)**

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5 The table gives information about the weights, in kilograms, of five animals.

Animal	Weight in kilograms
African buffalo	725
Indian elephant	3178
Giraffe	800
Pilot whale	2205
Walrus	1013

(a) Which animal has the least weight?

.....  
(1)

(b) Write down the value of the 1 in the number 3178.

.....  
(1)

(c) Work out the difference between 2205 and 1013.

.....  
(1)

The weight of a blue whale is 20 times the weight of the giraffe.

(d) Work out the weight of the blue whale.

Give your answer in tonnes.

1 tonne = 1000 kg

..... tonnes  
(2)

**(Total for Question 5 is 5 marks)**

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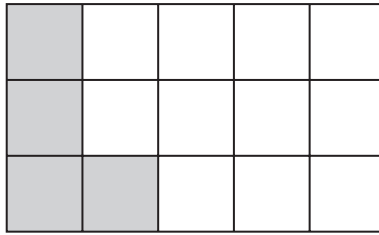
- 6 A field is in the shape of a rectangle.  
The width of the field is 70 m.  
The length of the field is 100 m.  
Fafa walks around the edge of the field 3 times.  
Work out the total distance Fafa walks.

..... m

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

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7 Here is a rectangle **A** made from centimetre squares.

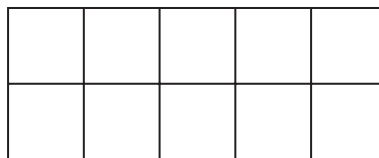


rectangle **A**

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

.....  
(1)

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



rectangle **B**

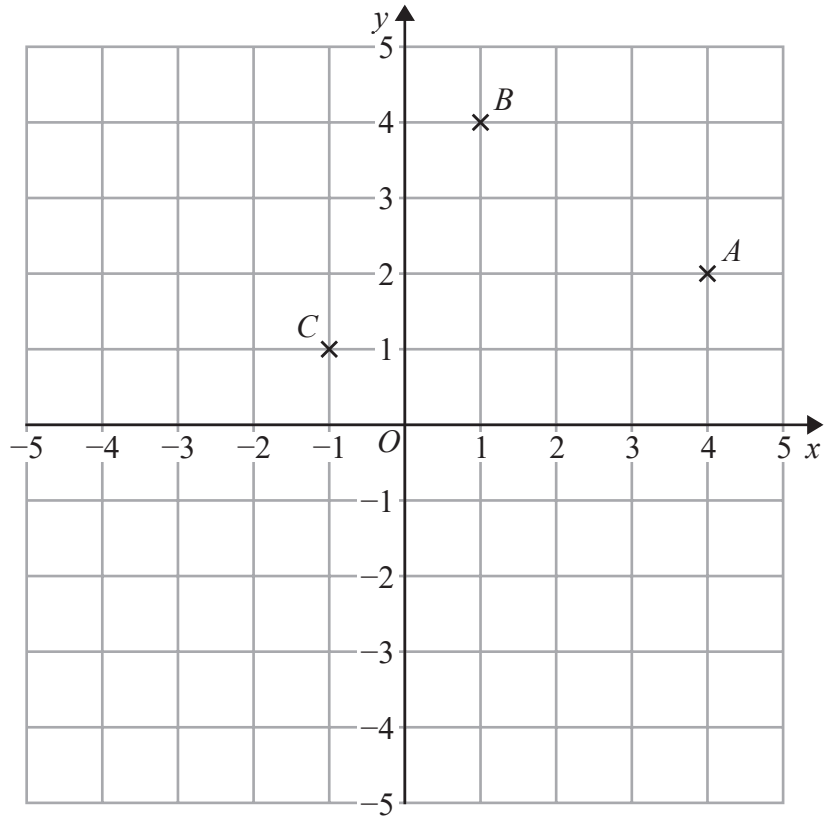
(b) Shade 40% of rectangle **B**.

(1)

(Total for Question 7 is 2 marks)

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8  $A$ ,  $B$  and  $C$  are three points marked on a grid.



(a) On the grid, draw the line with equation  $x = -3$ .  
Label the line L.

(1)

$M$  is the midpoint of  $AB$ .

(b) Find the coordinates of  $M$ .

(..... , .....)  
(2)

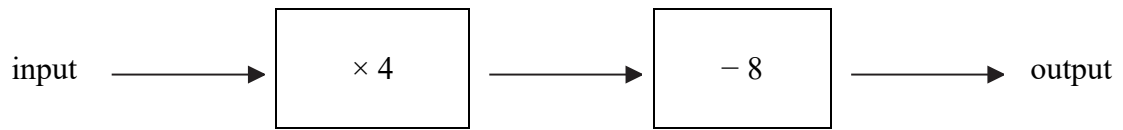
$D$  is the point so that  $ABCD$  is a square.

(c) Find the coordinates of  $D$ .

(..... , .....)  
(2)

**(Total for Question 8 is 5 marks)**

9 Here is a number machine.



(a) Work out the output when the input is 18.

.....  
(1)

(b) Work out the input when the output is 20.

.....  
(2)

Here is a different number machine.



For this number machine, when the input is 8 the output is 50

(c) Work out the value of  $x$ .

$x =$  .....  
(2)

**(Total for Question 9 is 5 marks)**

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10 Here is a list of all the nut trees Caterina counted one day.

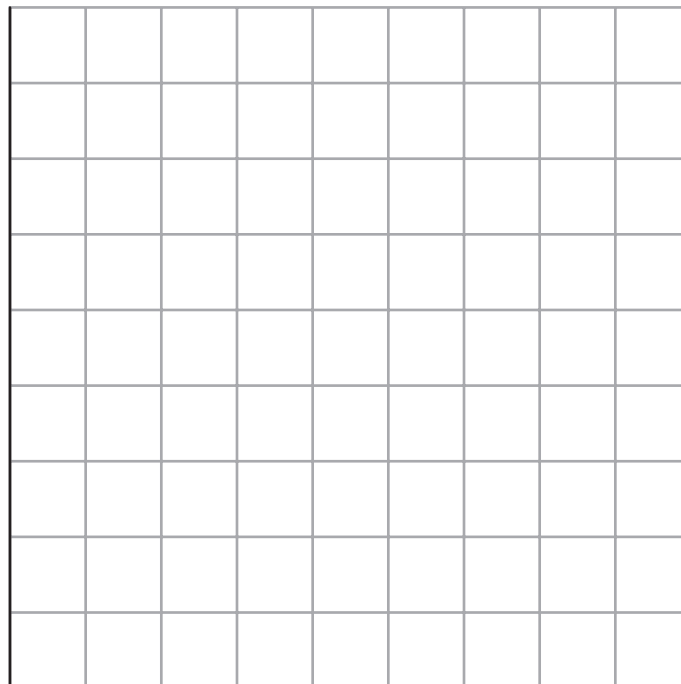
cashew	pistachio	almond	cashew	almond
walnut	walnut	almond	pistachio	cashew
cashew	walnut	almond	walnut	pistachio
almond	walnut	pistachio	walnut	walnut

(a) Complete the frequency table for Caterina’s list.

Nut tree	Tally	Frequency
cashew		
walnut		
almond		
pistachio		

(2)

(b) Draw a bar chart for the information in your table.



(3)

(Total for Question 10 is 5 marks)



**11** (a) Simplify  $y \times y \times y$

.....  
(1)

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

.....  
(1)

(c) Simplify  $2k - 4k + 3k$

.....  
(1)

**(Total for Question 11 is 3 marks)**

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12 The table shows the temperatures at midnight and at midday at five ski resorts.

Ski resort	Temperature at midnight ( $^{\circ}\text{C}$ )	Temperature at midday ( $^{\circ}\text{C}$ )
Chamonix	-5	3
Alto Campoo	-8	-2
Javornik	-5	-4
La Parva	-2	-2
Asiago	-7	0

(a) Which ski resort had the lowest temperature at midnight?

.....  
(1)

(b) Work out the increase in temperature from midnight to midday for Chamonix.

.....  $^{\circ}\text{C}$   
(1)

Jan knows that the temperature falls by  $1^{\circ}\text{C}$  for every 300 m increase in height above Asiago.

(c) What was the temperature at midnight at a height 1800 m above Asiago?

.....  $^{\circ}\text{C}$   
(2)

**(Total for Question 12 is 4 marks)**

**13** There are 20 counters in bag **X**.

7 of the counters are green.

10 of the counters are red.

The rest of the counters are blue.

Ruth takes at random a counter from bag **X**.

(a) Write down the probability that the counter is red.

.....  
(1)

(b) Work out the probability that the counter is blue.

.....  
(1)

Ruth puts the counter back into bag **X**.

Bag **Y** only contains green counters, red counters and blue counters.

In bag **Y** there are,

2 more green counters than in bag **X**

1 more red counter than in bag **X**

2 more blue counters than in bag **X**

Adam takes at random a counter from bag **Y**.

Ruth takes at random a counter from bag **X**.

(c) Who has the greater probability of taking a green counter, Adam or Ruth?  
Show your working clearly.

(3)

(Total for Question 13 is 5 marks)

14

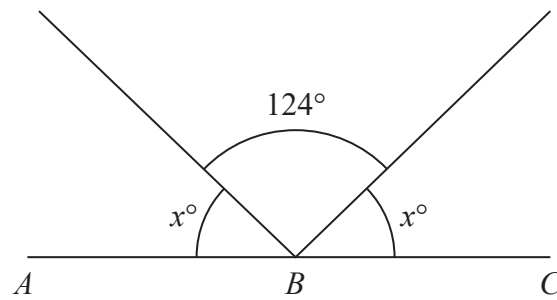


Diagram **NOT** accurately drawn

*ABC* is a straight line.  
Work out the value of  $x$ .

$x = \dots\dots\dots$

**(Total for Question 14 is 3 marks)**

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15 Show that  $\frac{7}{8} - \frac{1}{6} = \frac{17}{24}$

**(Total for Question 15 is 2 marks)**

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**16**  $y = c - dx$

$c = 15$

$d = 8$

$x = -4$

(a) Work out the value of  $y$ .

$y = \dots\dots\dots$   
(2)

$t = 4(p - q)$

$t = 18$

$q = 6$

(b) Work out the value of  $p$ .

$p = \dots\dots\dots$   
(2)

**(Total for Question 16 is 4 marks)**

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17 Here is a hexagon  $ABCDEF$ .

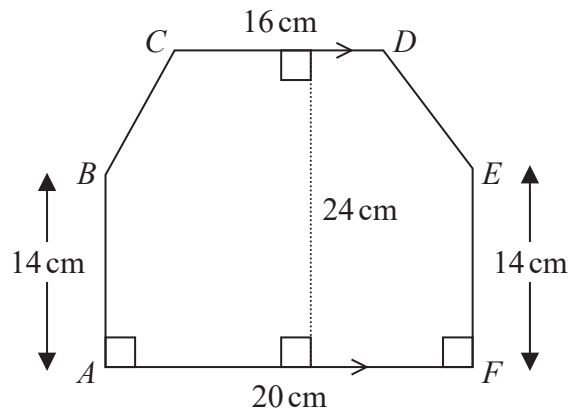


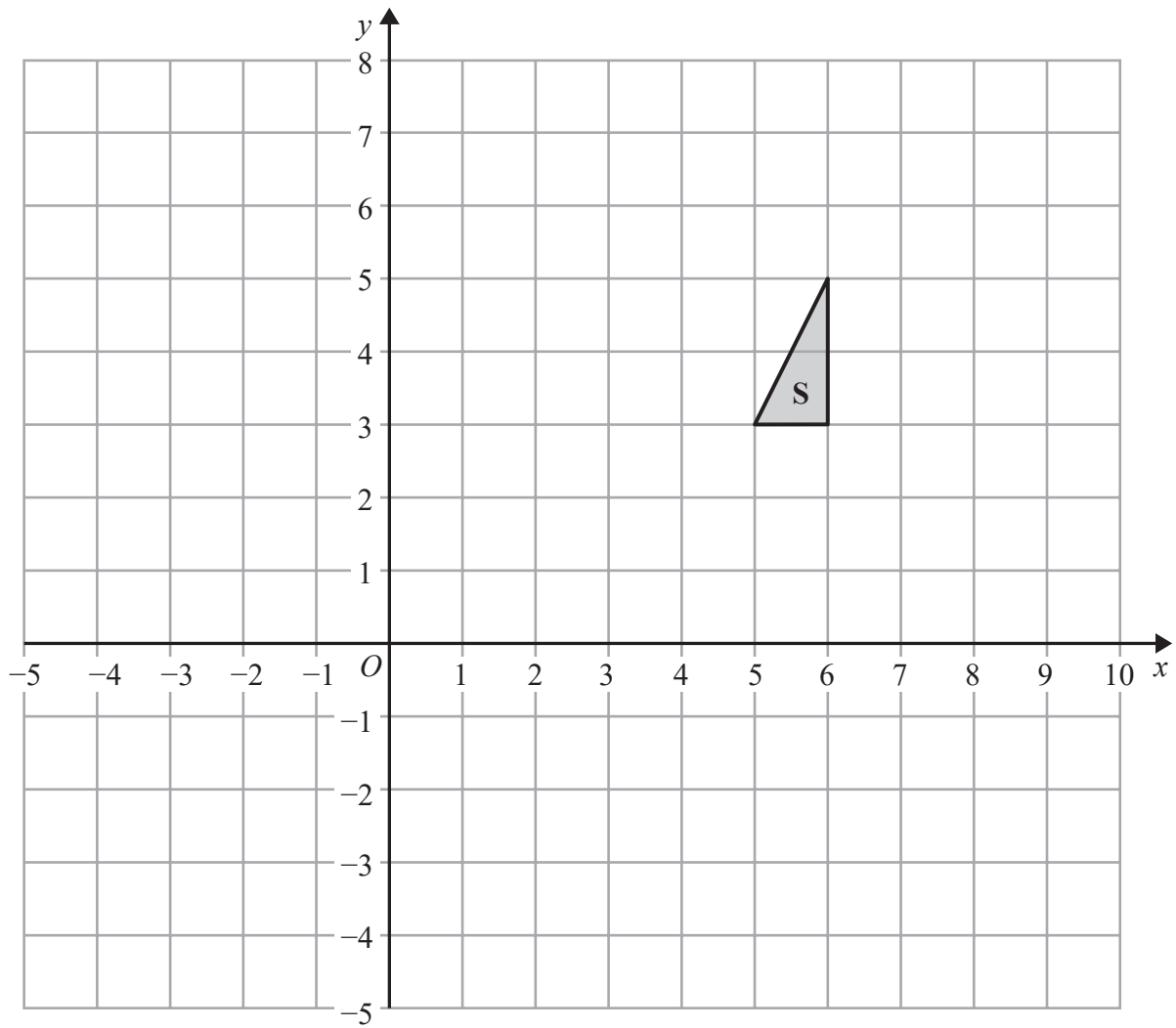
Diagram **NOT** accurately drawn

$CD$  is parallel to  $AF$ .

Work out the area of hexagon  $ABCDEF$ .

.....  $\text{cm}^2$

(Total for Question 17 is 4 marks)



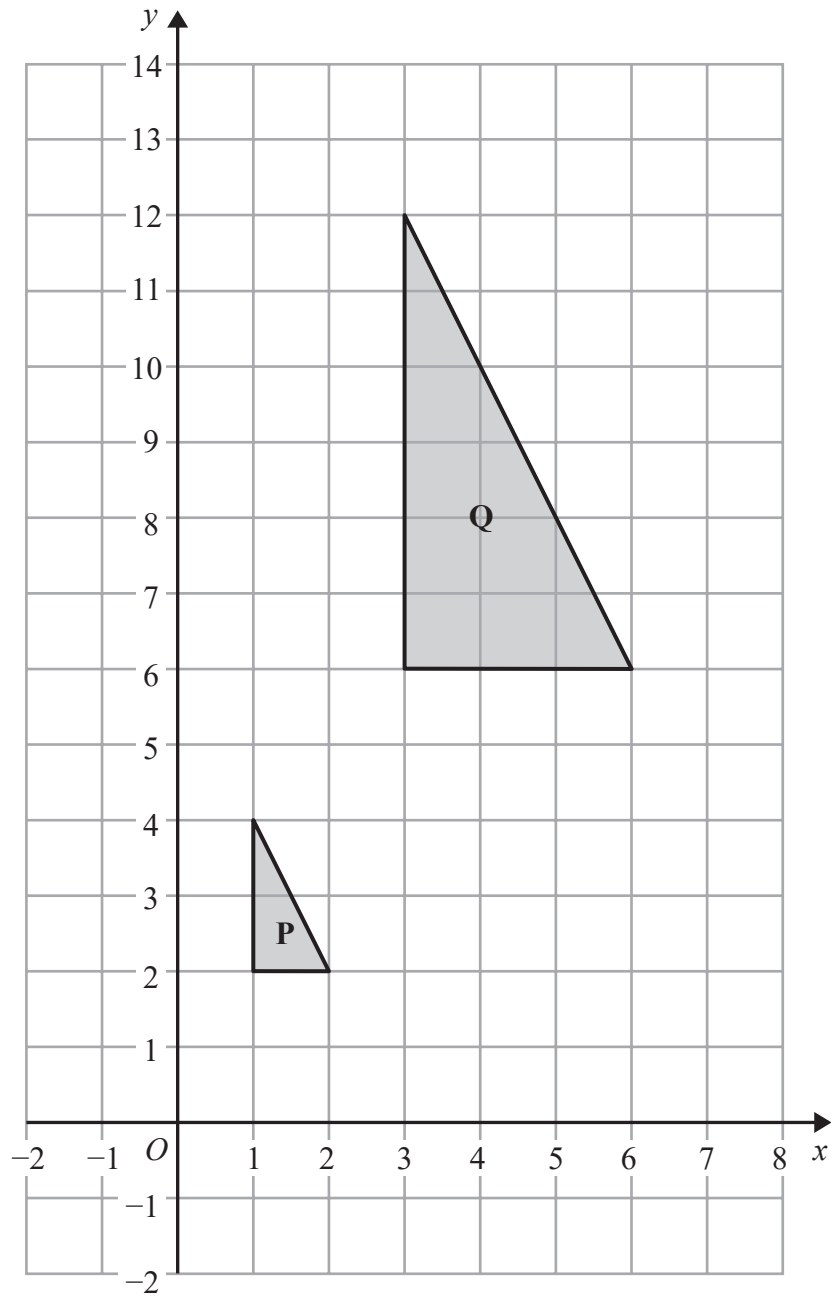
- (a) Reflect triangle **S** in the line  $y = x$   
Label the new triangle **R**.

(2)

- (b) Translate triangle **S** by the vector  $\begin{pmatrix} -4 \\ -6 \end{pmatrix}$

Label the new triangle **T**.

(1)



(c) Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

.....

.....

(2)

(Total for Question 18 is 5 marks)



**19** (a) Expand and simplify  $3(c - 7) + 2(3c + 4)$

.....  
(2)

(b) Expand and simplify  $(x + 7)(x - 2)$

.....  
(2)

(c) Factorise fully  $28y^2 - 21y$

.....  
(2)

**(Total for Question 19 is 6 marks)**

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**20**  $E = n^2 + n + 5$

(a) Work out the value of  $E$  when  $n = 3$

$E = \dots\dots\dots$   
**(1)**

Ali thinks that the value of  $E$  will be a prime number for any whole number value of  $n$ .

(b) Is Ali correct?

You must give a reason for your answer.

.....  
.....  
**(2)**

**(Total for Question 20 is 3 marks)**

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21

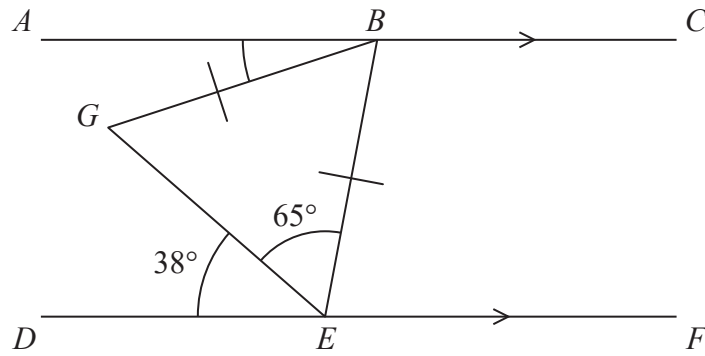


Diagram **NOT** accurately drawn

$ABC$  and  $DEF$  are parallel lines.

$$BG = BE$$

$$\text{Angle } DEG = 38^\circ$$

$$\text{Angle } GEB = 65^\circ$$

Find the size of angle  $ABG$ .

.....°

**(Total for Question 21 is 3 marks)**

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22 Here are the first four terms of an arithmetic sequence.

6            10            14            18

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

.....  
(2)

(b) Write down an expression, in terms of  $n$ , for the  $(n + 1)$ th term of this sequence.

.....  
(1)

**(Total for Question 22 is 3 marks)**

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23 (a) Write 1 390 000 in standard form.

.....  
(1)

(b) Write 0.005 in standard form.

.....  
(1)

**(Total for Question 23 is 2 marks)**

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24 Solve

$$3x + 2y = 15$$

$$10x - 4y = 2$$

Show clear algebraic working.

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

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

**(Total for Question 24 is 3 marks)**

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**TOTAL FOR PAPER IS 80 MARKS**

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