Please check the examination details below before entering your candidate information

| Candidate surname | Other names |
|---|---|
| | |

**Pearson Edexcel International GCSE**

Centre Number | Candidate Number

# Tuesday 15 January 2019

Morning (Time: 2 hours) | Paper Reference **4MA1/2F**

# Mathematics A

## Level 1/2
## Unit 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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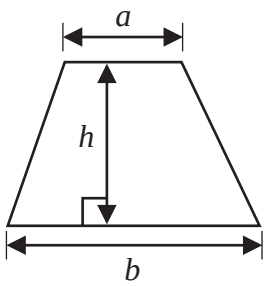
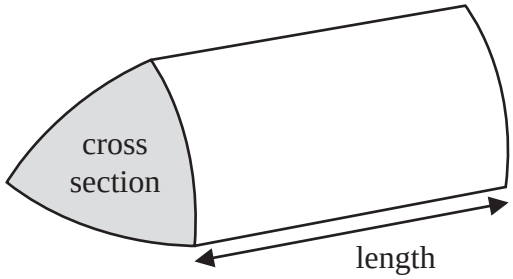
**International GCSE Mathematics**

**Formulae sheet – Foundation Tier**

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

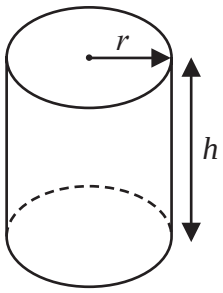



**Volume of prism** = area of cross section × length




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

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

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**Answer ALL TWENTY FOUR questions.**

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

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

**1** (a) Write $\frac{23}{100}$ as a decimal.

**(1)**

(b) Write 0.7 as a percentage.

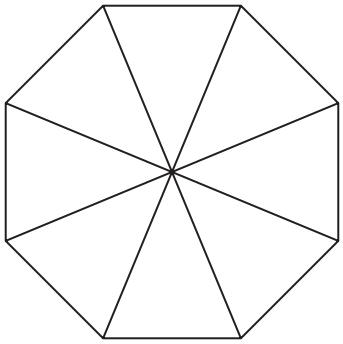
%

**(1)**

(c) Write $\frac{1}{5}$ as a decimal.

**(1)**

(d) Shade 75% of this diagram.



**(1)**

21% of the people on a train are asleep.

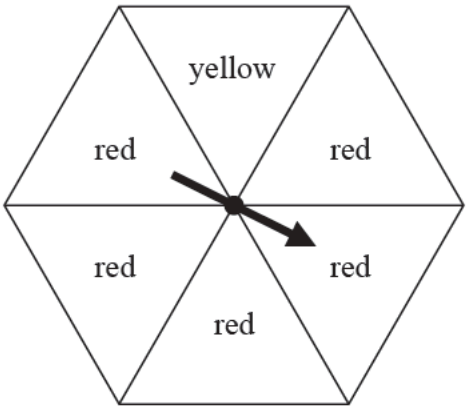
(e) What percentage of the people on the train are not asleep?

%

**(1)**

**(Total for Question 1 is 5 marks)**

**2** The diagram shows a fair spinner.




Mikail spins the arrow on the spinner once.

| | | | | |
|---|---|---|---|---|
| impossible | unlikely | evens | likely | certain |

(a) Write down the word from the box that best describes the likelihood that the arrow will land on

(i) red,

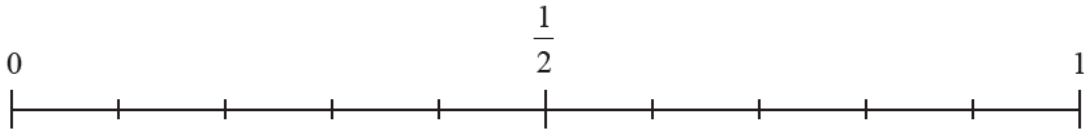
(ii) blue.

**(2)**

10 balls are in a bag.
3 of these balls are green.

Jill takes at random a ball from the bag.

(b) On the probability scale below, mark with a cross (×) the probability that the ball is green.




**(1)**

**(Total for Question 2 is 3 marks)**

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**3** Mike buys 150 burger buns.

He buys the burger buns in packs of 6 burger buns.
Each pack of 6 burger buns costs £1.03

Work out how much Mike pays for the 150 burger buns.

£

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

**4** (a) Simplify $4m + 2m - m$

**(1)**

(b) Simplify $5p \times 7$

**(1)**

(c) Solve $8g = 40$

$g =$

**(1)**

(d) Solve $19 - k = 4$

$k =$

**(1)**

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

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**5** The table shows the average monthly temperatures, in °C, for four months in London and in Cairo.

| | **January** | **April** | **July** | **October** |
|---|---|---|---|---|
| **London (°C)** | 5 | 11 | 19 | 13 |
| **Cairo (°C)** | 14 | 21 | 28 | 23 |

Show this information by drawing a suitable diagram on the grid below.

**(Total for Question 5 is 4 marks)**

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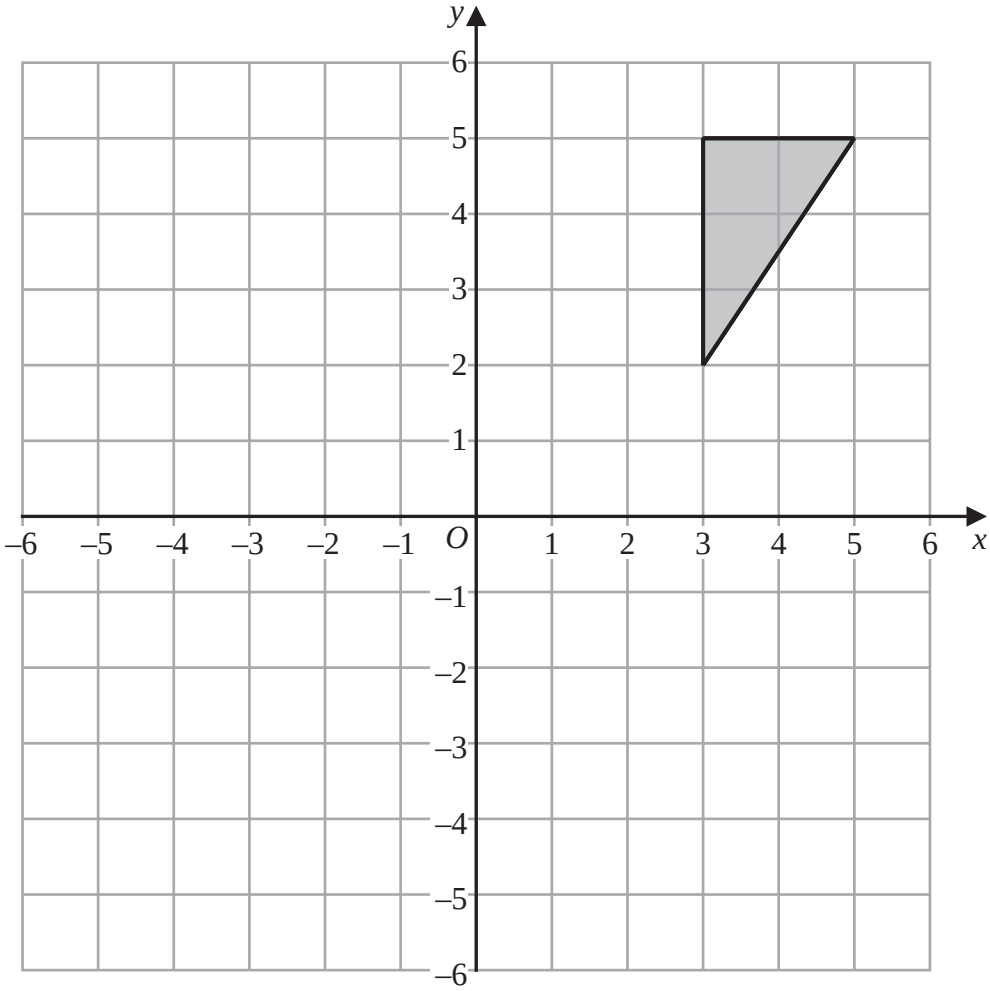
**6** Steve throws a 6-sided dice.
The dice can land on 1 or on 2 or on 3 or on 4 or on 5 or on 6

He also spins a coin.
The coin can land on heads (H) or on tails (T).

List all the possible combinations he could get.

**(Total for Question 6 is 2 marks)**

**7**




Reflect the shaded triangle in the line $y = 1$

**(Total for Question 7 is 2 marks)**

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**8** (a) Write $\frac{19}{5}$ as a mixed number.

**(1)**

There are 84 animals in a field.

10 of the animals are horses.
45 of the animals are sheep.
The rest of the animals are cows.

(b) What fraction of the animals in the field are cows?

**(2)**

(c) Write these fractions in order of size.
Start with the smallest fraction.

$\frac{3}{4}$ $\frac{11}{12}$ $\frac{5}{8}$ $\frac{9}{20}$

**(2)**

(d) Show that $\frac{23}{24} - \frac{3}{8} = \frac{7}{12}$

**(2)**

**(Total for Question 8 is 7 marks)**

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**9** Sahil has a fish tank in the shape of a cuboid, as shown in the diagram.

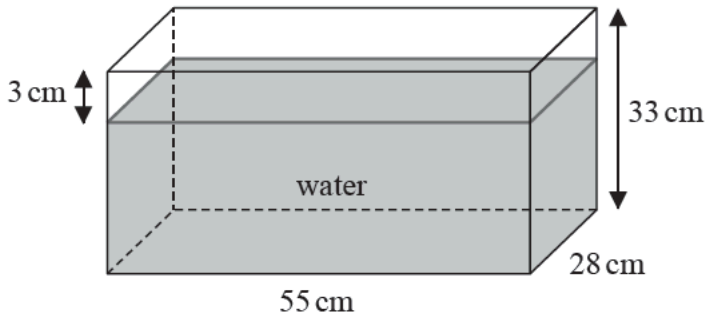


Diagram **NOT** accurately drawn

The tank is

55 cm long
28 cm wide
33 cm high

The surface of the water in the tank is 3 cm below the top of the tank.

Sahil is going to put some neon tetra fish in his tank.
He must allow 4 litres of water for each of the neon tetra fish he puts in the tank.

What is the greatest number of neon tetra fish Sahil can put in his tank?

**(Total for Question 9 is 4 marks)**

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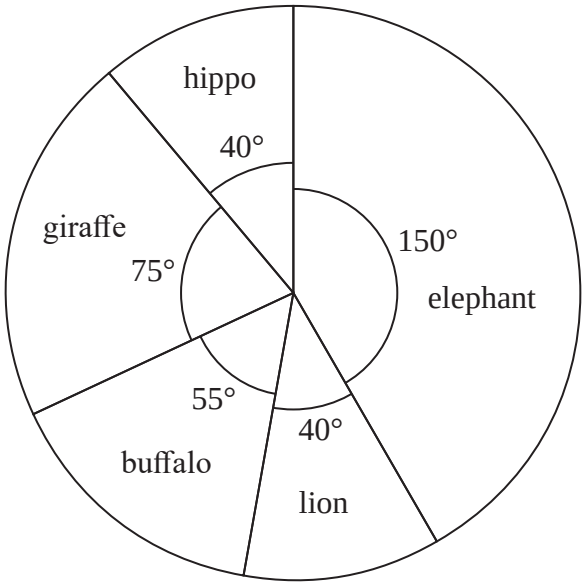
**10** Jerry went on holiday to a game reserve.
He recorded the number of each of five different types of animal he saw.

The pie chart below gives information about his results.




(a) Write down the ratio of the number of elephants Jerry saw to the number of giraffes he saw.
Give your ratio in its simplest form.

**(2)**

Jerry saw 8 lions.

(b) How many giraffes did Jerry see?

**(2)**

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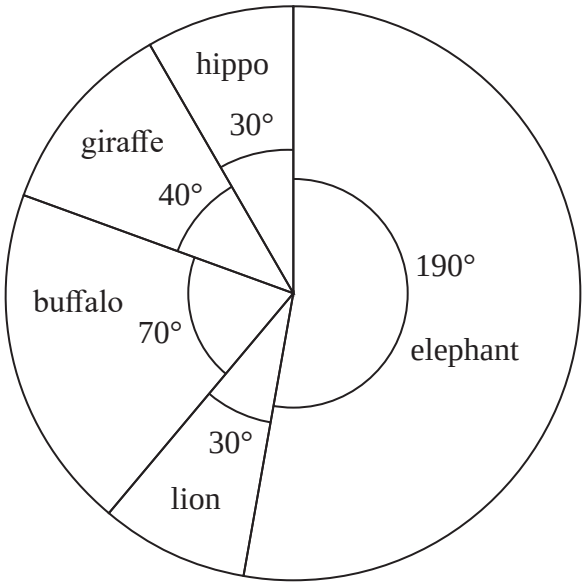
Lesley went on holiday to the same game reserve.
She also recorded the number of each of five different types of animal she saw.
The pie chart below gives information about her results.




Lesley says,

"The pie charts show that I saw more elephants than Jerry saw."

(c) Is Lesley correct?
You must give a reason for your answer.

**(1)**

**(Total for Question 10 is 5 marks)**

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**11** (a) Solve $5m + 7 = 24$

$m =$

**(2)**

(b) Make $t$ the subject of $k = \dfrac{t - e}{2}$

**(2)**

(c) Simplify $p^8 \div p^3$

**(1)**

(d) Simplify $n^0$

**(1)**

(e) Simplify $(3x^2y^5)^3$

**(2)**

**(Total for Question 11 is 8 marks)**

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**12** A circle has radius 9 cm.

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

cm

**(2)**

The diagram shows the pentagon *ABCDE*.

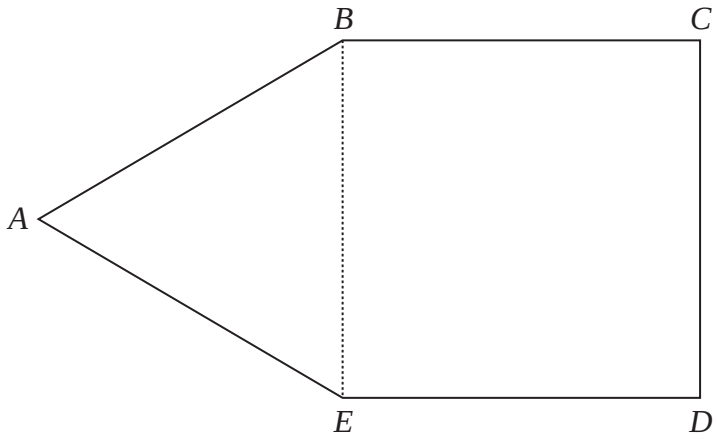


Diagram **NOT** accurately drawn

*ABE* is an equilateral triangle.

*BCDE* is a square with area 169 $cm^2$

(b) Work out the perimeter of *ABCDE*.

cm

**(3)**

**(Total for Question 12 is 5 marks)**

**13**

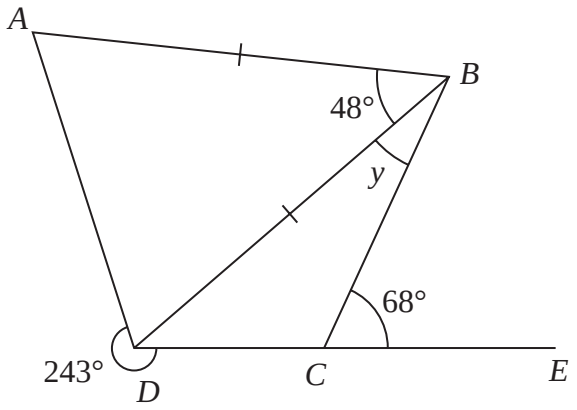


Diagram **NOT** accurately drawn

*ABD* is an isosceles triangle with *AB* = *DB*.
*DCE* is a straight line.

Angle *ABD* = 48°
Angle *BCE* = 68°
Reflex angle *ADC* = 243°

Work out the size of the angle marked *y*.
Give a reason for each stage in your working.

°

**(Total for Question 13 is 5 marks)**

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**14** Toy cars are made in a factory.

300 cars per hour are made in the factory.

Cars are made in the factory for $9\frac{1}{2}$ hours each day.

8% of the cars made in the factory are faulty.
The rest of the cars made in the factory are **not** faulty.

Work out how many of the cars made each day are **not** faulty.

**(Total for Question 14 is 4 marks)**

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**15** Use ruler and compasses only to construct the perpendicular bisector of the line *AB*.
You must show all of your construction lines.

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

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**16** The table shows information about the number of birds each of 40 people counted in their garden one morning.

| Number of birds | Frequency |
|---|---|
| 1 − 5 | 5 |
| 6 − 10 | 10 |
| 11 − 15 | 16 |
| 16 − 20 | 9 |

(a) Write down the modal class.

**(1)**

(b) Work out an estimate for the mean number of birds.

**(4)**

**(Total for Question 16 is 5 marks)**

**17** There are 90 counters in a bag.
Each counter in the bag is either red or blue so that

the number of red counters : the number of blue counters = 2 : 13

Li is going to put some more red counters in the bag so that

the probability of taking at random a red counter from the bag is $\frac{1}{3}$

Work out the number of red counters that Li is going to put in the bag.

**(Total for Question 17 is 4 marks)**

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**18** $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
$A = \{\text{odd numbers}\}$
$A \cap B = \{1, 3\}$
$A \cup B = \{1, 2, 3, 4, 5, 6, 7, 9, 11, 12\}$

Draw a Venn diagram to show this information.

$\mathscr{E}$

**(Total for Question 18 is 4 marks)**

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**19** Calvin has 12 identical rectangular tiles.
He arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram below.

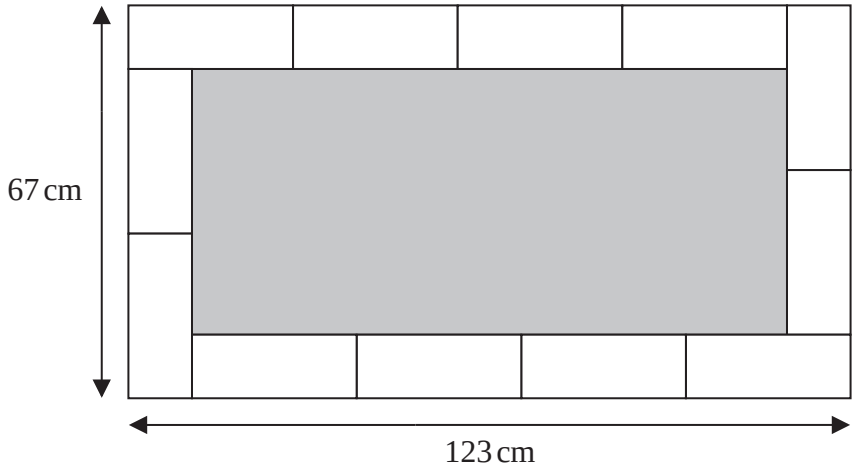


Diagram **NOT** accurately drawn

Work out the area of the shaded rectangle.

$cm^2$

**(Total for Question 19 is 5 marks)**

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**20** (a) Find the highest common factor (HCF) of 96 and 120

**(2)**

$A = 2^3 \times 5 \times 7^2 \times 11$
$B = 2^4 \times 7 \times 11$
$C = 3 \times 5^2$

(b) Find the lowest common multiple (LCM) of $A$, $B$ and $C$.

**(2)**

**(Total for Question 20 is 4 marks)**

**21** Jenny invests \$8500 for 3 years in a savings account.
She gets 2.3% per year compound interest.

How much money will Jenny have in her savings account at the end of 3 years?
Give your answer correct to the nearest dollar.

\$

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

**22** A block of wood has a mass of 3.5 kg.
The wood has density 0.65 kg/m$^3$

(a) Work out the volume of the block of wood.
Give your answer correct to 3 significant figures.

m$^3$

**(3)**

(b) Change a speed of 630 kilometres per hour to a speed in metres per second.

m/s

**(3)**

**(Total for Question 22 is 6 marks)**

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**23** Solve the simultaneous equations

$$4x + 5y = 4$$
$$2x - y = 9$$

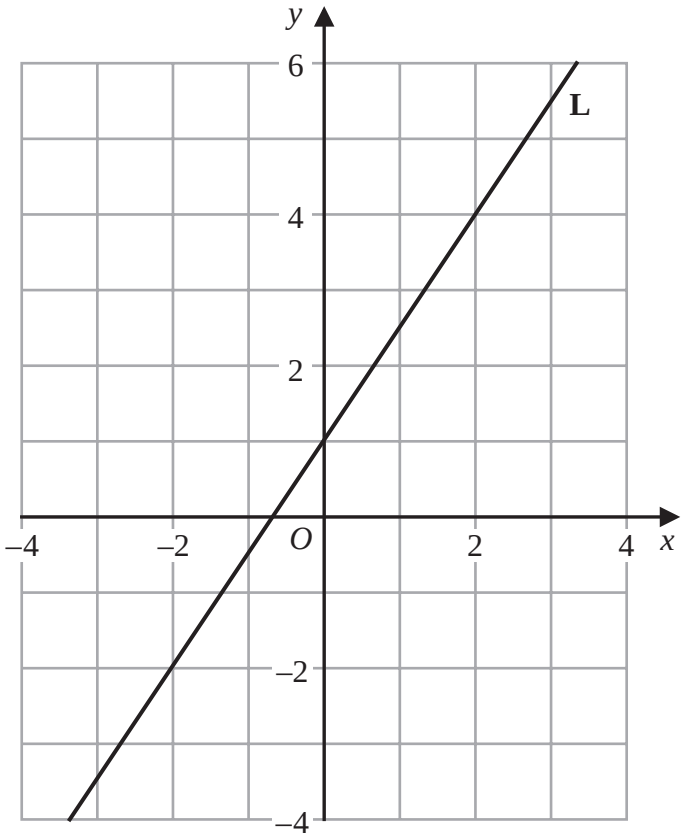
Show clear algebraic working.

$x =$

$y =$

**(Total for Question 23 is 3 marks)**

**24** The line **L** is drawn on the grid.




Find an equation for **L**.

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

**TOTAL FOR PAPER IS 100 MARKS**

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