GCSE Mathematics

Practice Tests: Set 22

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 not 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
- Questions are in order of mean difficulty as found by students achieving Grade 4.
- 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 THIRTY questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write these numbers in order of size.
Start with the smallest number.

202 58 123 7 180

.....

(Total for Question 1 is 1 mark)

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2 Write 0.7 as a fraction.

.....

(Total for Question 2 is 1 mark)

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3 Write a number in the box so that the following statement is correct.

$\frac{3}{4}$ and $\frac{\square}{20}$ are equivalent fractions.

(Total for Question 3 is 1 mark)

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4 Write these numbers in order of size.
Start with the smallest number.

0.155 1.5 0.15 0.015 1.15

.....

(Total for Question 4 is 1 mark)

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5 Work out $\frac{3}{5}$ of 35

.....

(Total for Question 5 is 2 marks)

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6 The pictogram shows information about the number of loaves of bread sold in a bakery each day from Tuesday to Friday last week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  represents 6 loaves of bread

(*a*) How many loaves of bread were sold on Friday?

.....

(1)

The total number of loaves sold in the bakery from Monday to Friday last week was 66

(*b*) (i) Work out the number of loaves sold on Monday last week.

.....

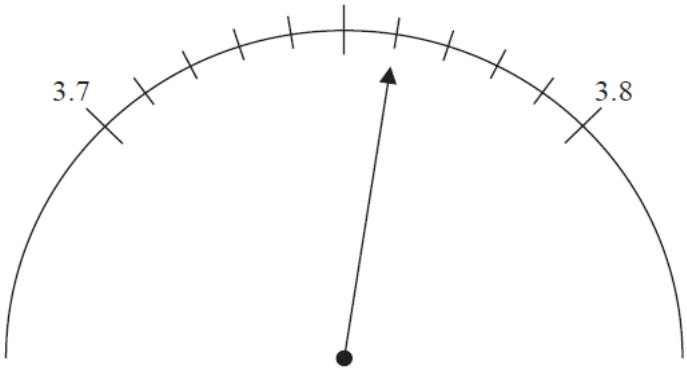
(2)

(ii) Show this information for Monday on the pictogram.

(1)

(Total for Question 6 is 4 marks)

7



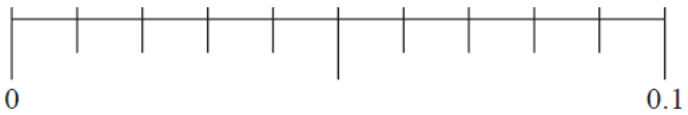
(*a*) Write down the number marked with the arrow on the scale above.

.....

(1)

(*b*) Mark with an arrow (↑) the number 0.04 on the scale below.

(1)



(*c*) Write the number 5.68 correct to one decimal place.

.....

(1)

(Total for Question 7 is 3 marks)

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8 (*a*) Simplify $6p + 2t + p - 3t$

.....

(2)

$A = 8x - 3y$

(*b*) Work out the value of A when $x = 5$ and $y = 4$

$A =$ .....

(2)

(Total for Question 8 is 4 marks)

---

9 (*a*) Simplify $a \times a \times a \times a \times a$

.....

(1)

(*b*) Simplify $8b \times 3c$

.....

(1)

(*c*) Expand $3(x + 4)$

.....

(1)

(Total for Question 9 is 3 marks)

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10 Mario is going to play two games on Saturday.
He will play one game on Saturday morning and one game on Saturday afternoon.

The following table shows the games from which he is going to choose.

Morning	Afternoon
Bridge (B)	Ludo (L)
Chess (C)	Mahjong (M)
Draughts (D)	Snakes and ladders (S)

Write down all the possible combinations of games that Mario can play on Saturday.

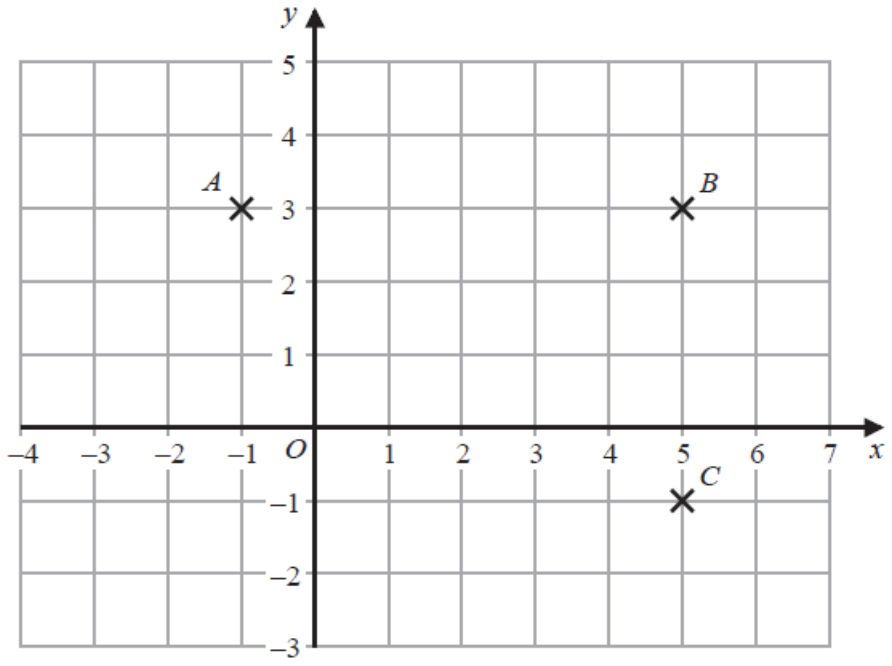
.....

.....

.....

(Total for Question 10 is 2 marks)

11 The three points A, B and C are marked on a centimetre grid.



(2) Write down the coordinates of A

(…….. , ……..)

(1)

(b) Find the coordinates of the midpoint of BC

(…….. , ……..)

(2)

(c) Work out the area of triangle ABC

…….. cm^2

(2)

D is the point on the grid so that $ABCD$ is a rectangle.

(d) On the grid, mark with a cross (X) the point D
Label this point D

(1)

(Total for Question 11 is 6 marks)

12 Mario asked 100 students in his school to name their favourite card game.

His results are shown in the two-way table below.

	Solitaire	**Rummy**	**Whist**	**Total**
Year 10	30	19	4	53
Year 11	17	18	12	47
Total	47	37	16	100

One of the students Mario asked is picked at random.

(a) Write down the probability that this student is in Year 11

.....

(1)

One of the Year 10 students is picked at random.

(b) Work out the probability that this student did **not** answer Whist.

.....

(2)

(Total for Question 12 is 3 marks)

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13 Write a number on each dotted line to make the calculation correct.

(i) $10 - \ldots\ldots\ldots\ldots \times 2 = 4$

(1)

(ii) $(5 + \ldots\ldots\ldots\ldots) \times 3 = 36$

(1)

(Total for Question 13 is 2 marks)

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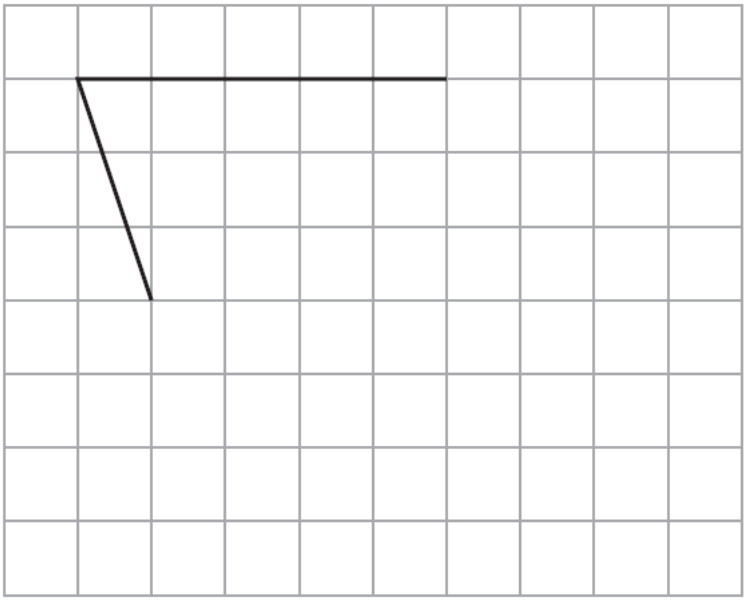
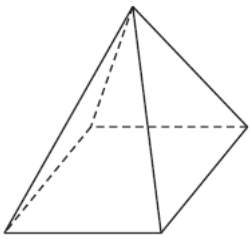
14 Here are two sides of a parallelogram.



(*a*) On the grid above, complete the parallelogram.

(1)

The diagram shows a 3-D shape.



(*b*) (i) What is the mathematical name of this 3-D shape?

.....

(1)

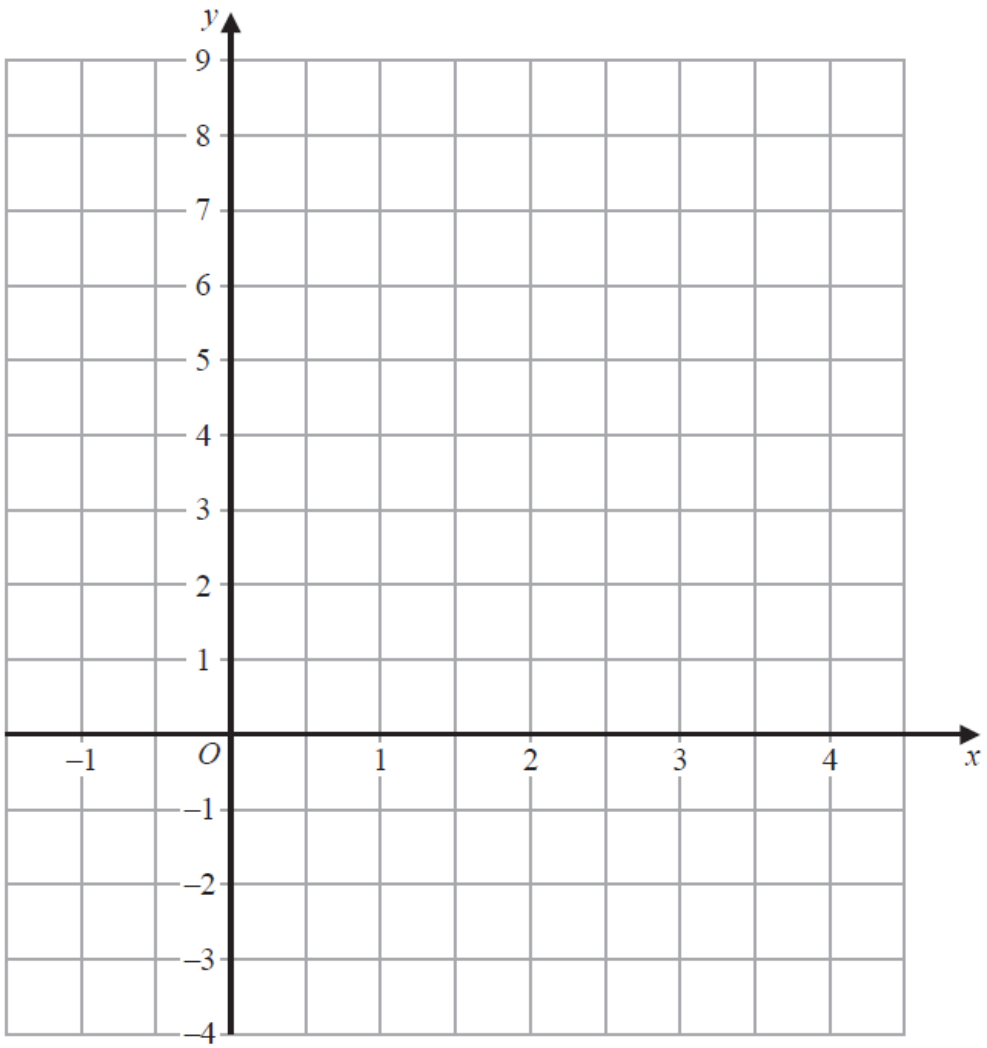
(ii) How many faces has this shape?

.....

(1)

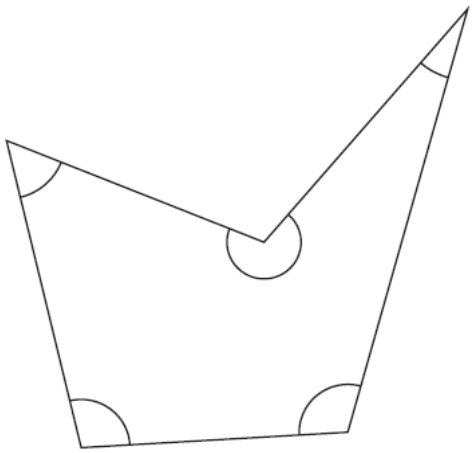
(Total for Question 14 is 3 marks)

15 On the grid, draw the graph of $y = 2x - 1$ for values of x from -1 to 4



(Total for Question 15 is 3 marks)

16 Here is a 5‑sided polygon.



(*a*) Write down the mathematical name for a 5‑sided polygon.

.....

(1)

(*b*) On the diagram, mark with a letter *A* an acute angle.

(1)

(*c*) On the diagram, mark with a letter *R* a reflex angle.

(1)

(Total for Question 16 is 3 marks)

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17 Expand $3c^3(c + 4)$

.....

(Total for Question 17 is 2 marks)

18

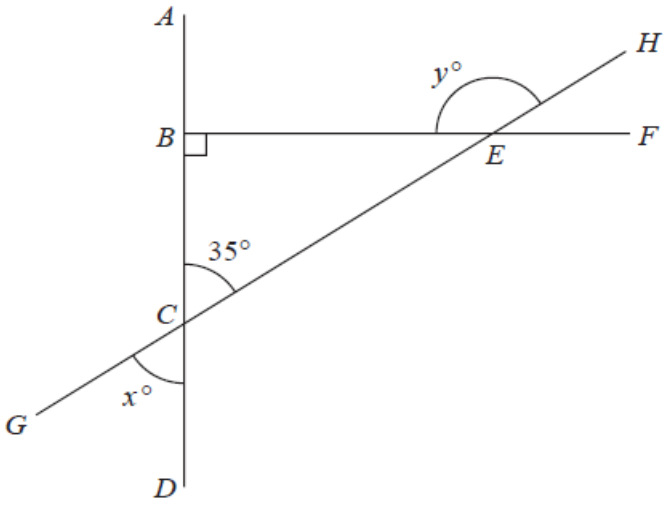

Diagram **NOT** accurately drawn

In the diagram, *BCE* is a right-angled triangle.
ABCD, *BEF* and *GCEH* are straight lines.

Angle *BCE* = 35°

(*a*) (i) Find the value of *x*

x = ...

(1)

(ii) Give a reason for your answer.

.....

(1)

(*b*) (i) Work out the value of *y*

y = ...

(2)

(ii) Give a reason for your answer.

.....

.....

(1)

(Total for Question 18 is 5 marks)

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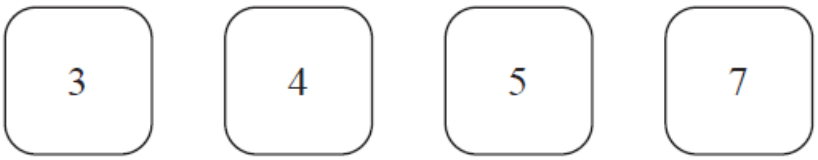
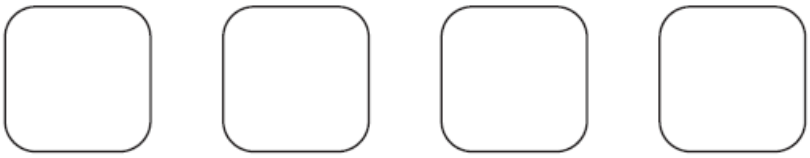
19 Here are four cards.
Each card has a number written on it.



These four cards are arranged to make the number 3457

(*a*) Arrange the four cards to make the largest possible even number.



(1)

Darren arranges the cards to make another number.

The difference between the number 3600 and the number that Darren makes is as small as possible.

(*b*) Find this difference.

.....

(2)

(Total for Question 19 is 3 marks)

20 Show that $2\frac{2}{3}+3\frac{3}{4}=6\frac{5}{12}$

(Total for Question 20 is 3 marks)

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21 Triangle ABC is an equilateral triangle of side 6 cm.

Using a ruler and compasses only, construct triangle ABC
You must show all your construction lines.

Side AB has been drawn for you.

(Total for Question 21 is 2 marks)

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22 Masie is told that 13 203 ÷ 27 = 489

Explain how she can use this calculation to work out 489 × 28

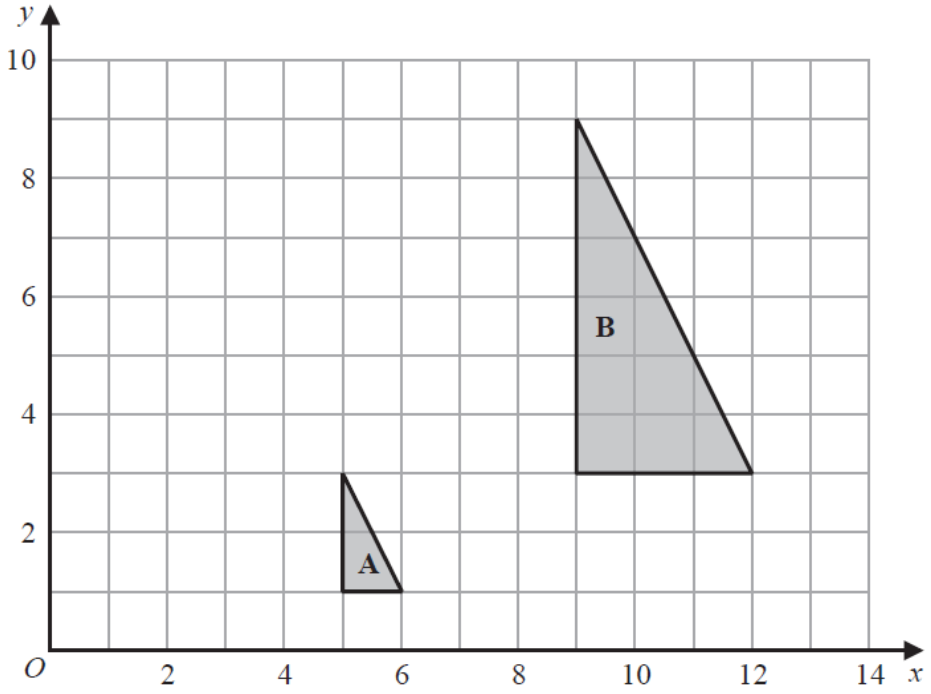
.....

.....

.....

(Total for Question 22 is 2 marks)

23



(*a*) Describe fully the single transformation that maps triangle **A** onto triangle **B**

.....

.....

(3)

(*b*) On the grid above, translate triangle **A** by the vector $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$

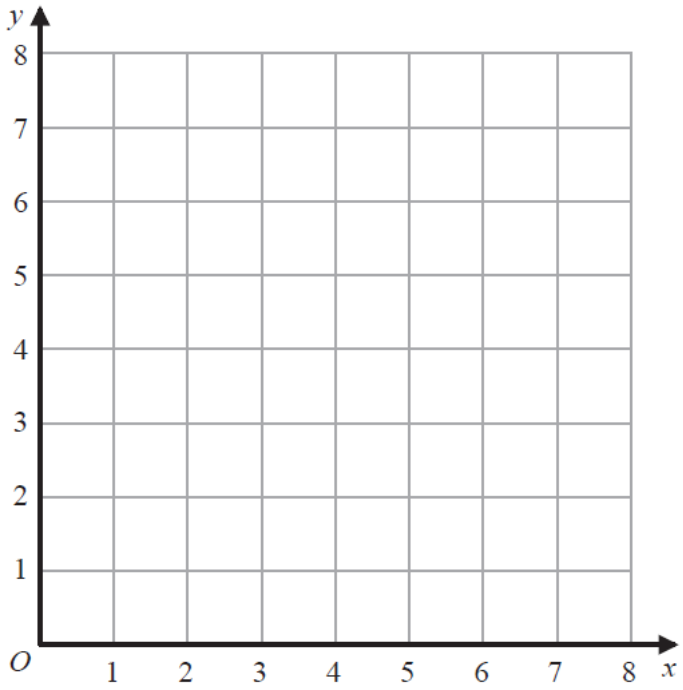
Label your triangle **C**

(1)

(Total for Question 23 is 4 marks)

24 (*a*) On the grid, draw and label with its equation the straight line with equation

(i) $y = 1$ (ii) $x = 2$ (iii) $x + y = 7$



(3)

(*b*) Show, by shading on the grid, the region that satisfies **all three** of the inequalities

$y \geq 1$ $x \geq 2$ $x + y \leq 7$

Label the region **R**.

(1)

(Total for Question 24 is 4 marks)

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25 (*b*) Simplify a^0 where $a > 0$

.....

(Total for Question 25 is 1 mark)

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26 Factorise fully $10c^3d^2 + 15cd^4$

.....

(Total for Question 26 is 2 marks)

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27 Simplify fully $\dfrac{3xy^3}{6x^2y}$

.....

(Total for Question 27 is 2 marks)

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28 (a) Factorise $x^2 + 8x - 9$

.....

(2)

(b) Hence, solve $x^2 + 8x - 9 = 0$

.....

(1)

(Total for Question 28 is 5 marks)

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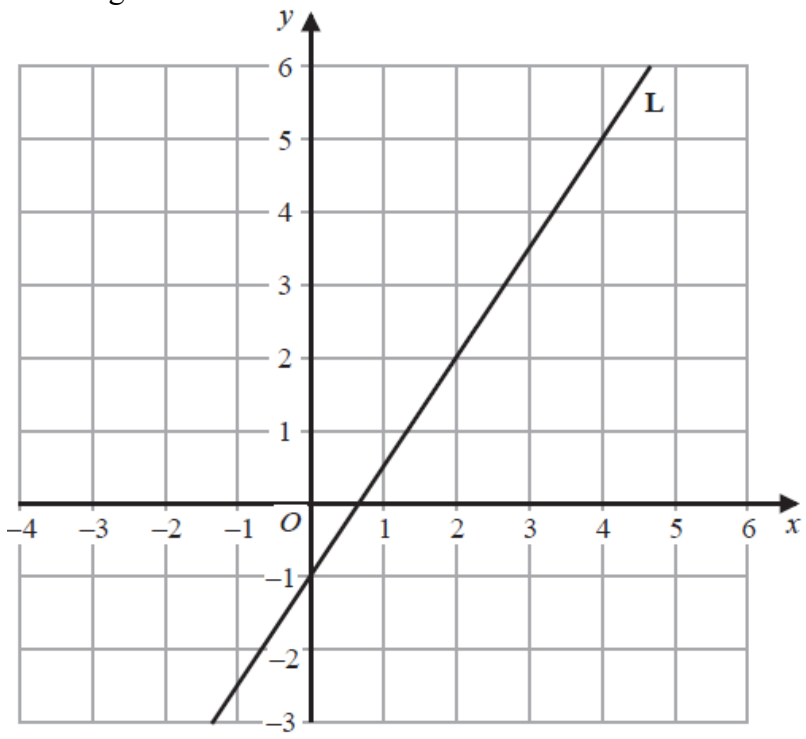
29 Line **L** is drawn on the grid.



Find an equation for **L**
Give your answer in the form $y = mx + c$

.....

(Total for Question 29 is 3 marks)

30 $\frac{2^k}{4^n} = 2^x$

Find an expression for x in terms of k and n

$x =$ .....

(Total for Question 30 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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