Name	Class

MATHS TEACHER HUB

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Graphs - Linear

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	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.
•Answer the questions in the spaces provided
– *there may be more space than you need*.
•Diagrams are NOT accurately drawn, unless otherwise indicated.
•You must **show all your working out.**
•If the question is a **1F** question you are not allowed to use a calculator.
•If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

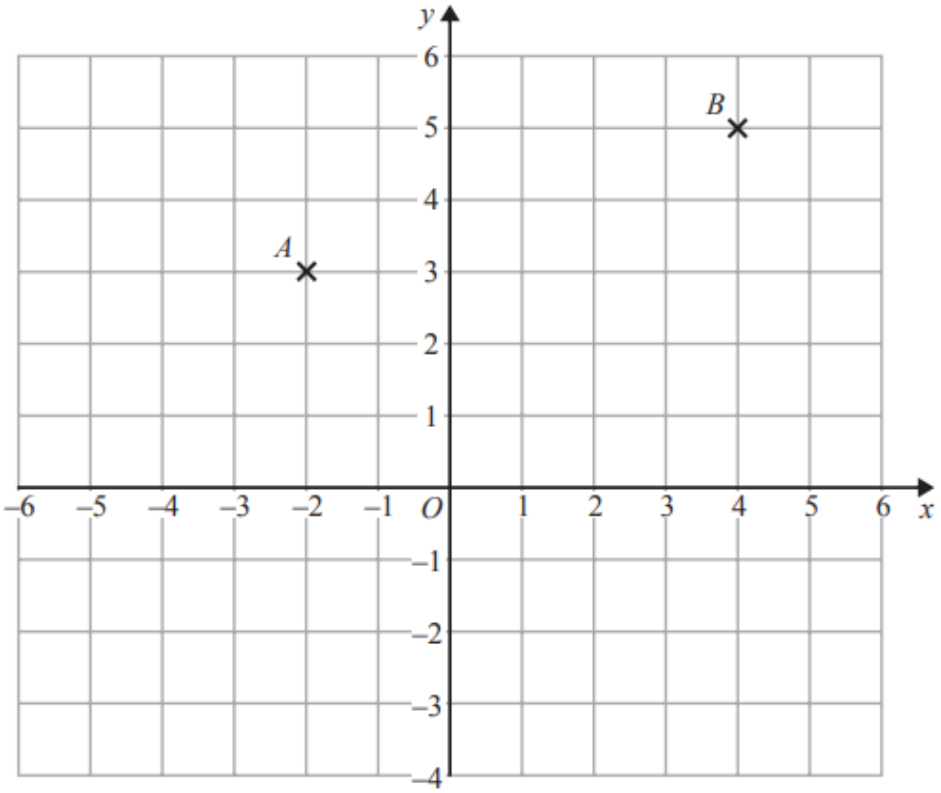
•The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question*.

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 space provided.
You must write down all the stages in your working.

5



(a) Write down the coordinates of point B.

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

(1)

(b) Find the coordinates of the midpoint of AB.

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

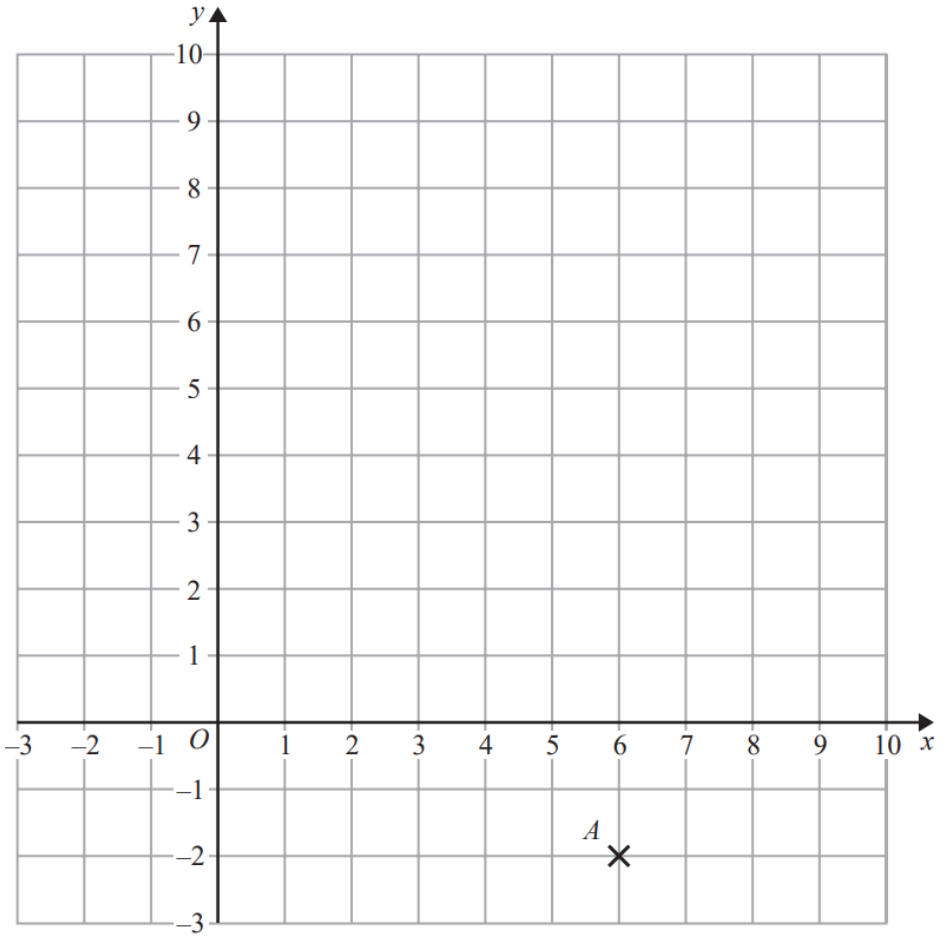
(1)

(c) On the grid, draw the line with equation $y = -3$

(1)

Specimen 2 – Paper 1F **(Total for Question 5 is 3 marks)**

7



(a) Write down the coordinates of the point A.

(..... , ...)

(1)

(b) (i) Plot the point with coordinates (2, 9).
Label this point B.

(1)

(ii) Does point B lie on the straight line with equation $y = 4x + 1$?
You must show how you get your answer.

.....

.....

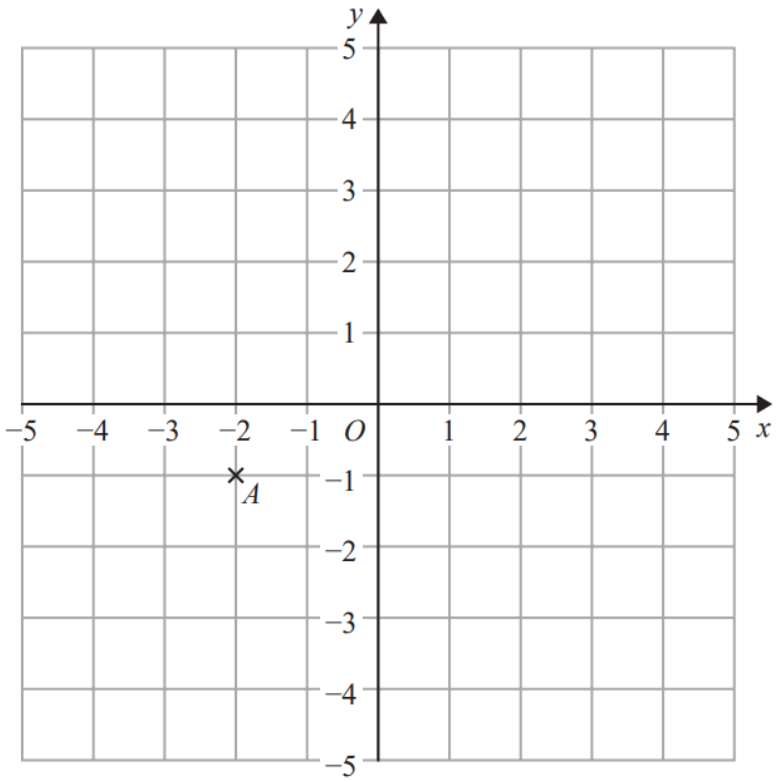
(1)

(c) On the grid, draw the line with equation $x = -2$

(1)

(Total for Question 7 is 4 marks)

8



(a) Write down the coordinates of point A.

(..... , ...)

(1)

(b) On the grid, mark with a cross (×) the point (2, 3)
Label this point B.

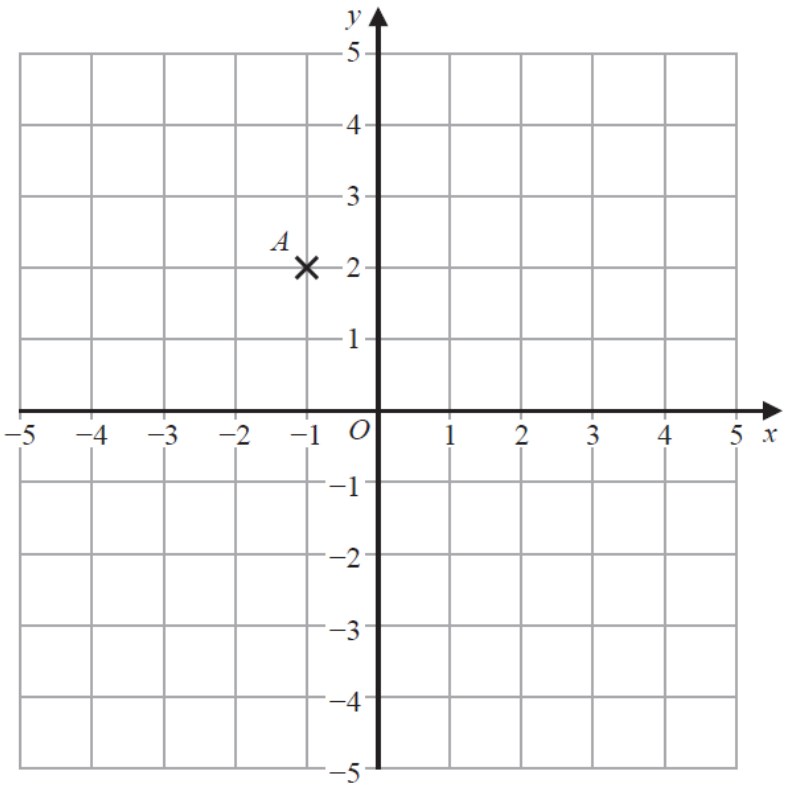
(1)

(c) On the grid, draw the line with equation $x = -4$

(1)

November 2018 – Paper 1F **(Total for Question 8 is 3 marks)**

9



(a) Write down the coordinates of point A.

(..... , ...)

(1)

(b) On the grid, mark with a cross (×) the point (1, 4)
Label this point B.

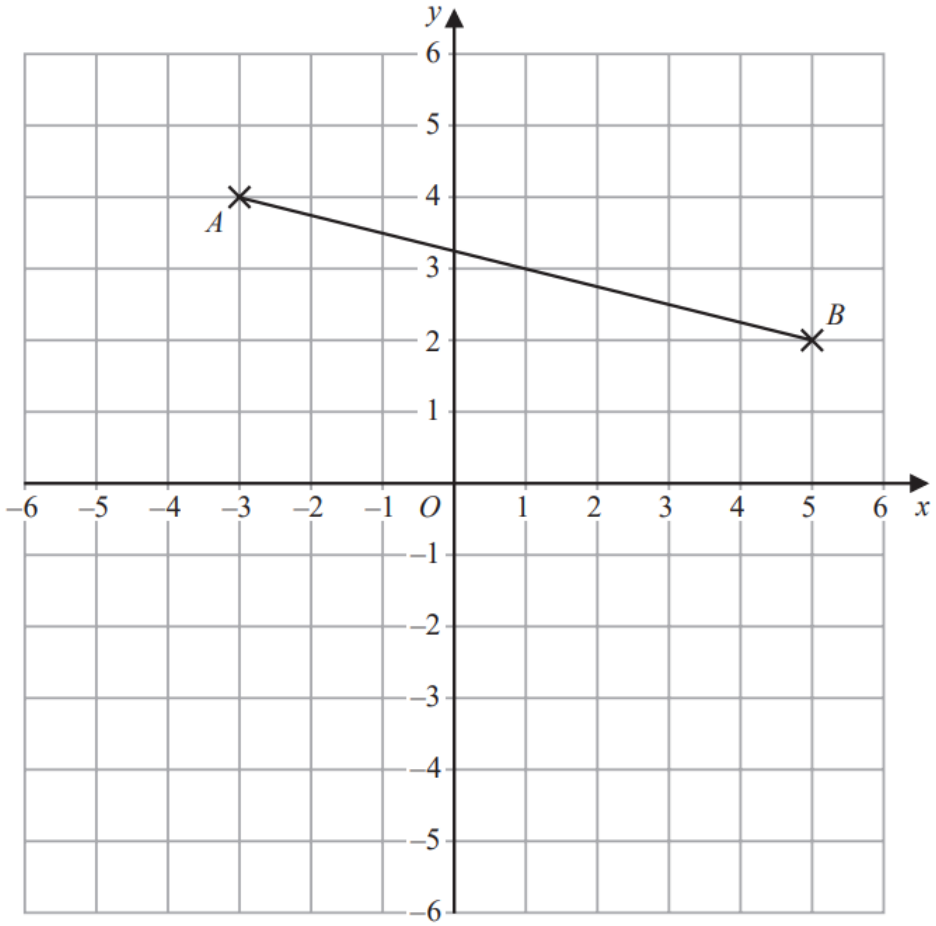
(1)

(c) On the grid, draw the line with equation $y = -3$

(1)

November 2022 – 3F **(Total for Question 9 is 3 marks)**

9



(a) Write down the coordinates of point B.

(..... , ...)

(1)

(b) Plot the point with coordinates (4, –2)
Label this point C.

(1)

(c) Write down the coordinates of the midpoint of AB.

(..... , ...)

(1)

(d) Draw the line with equation $y = -4$

(1)

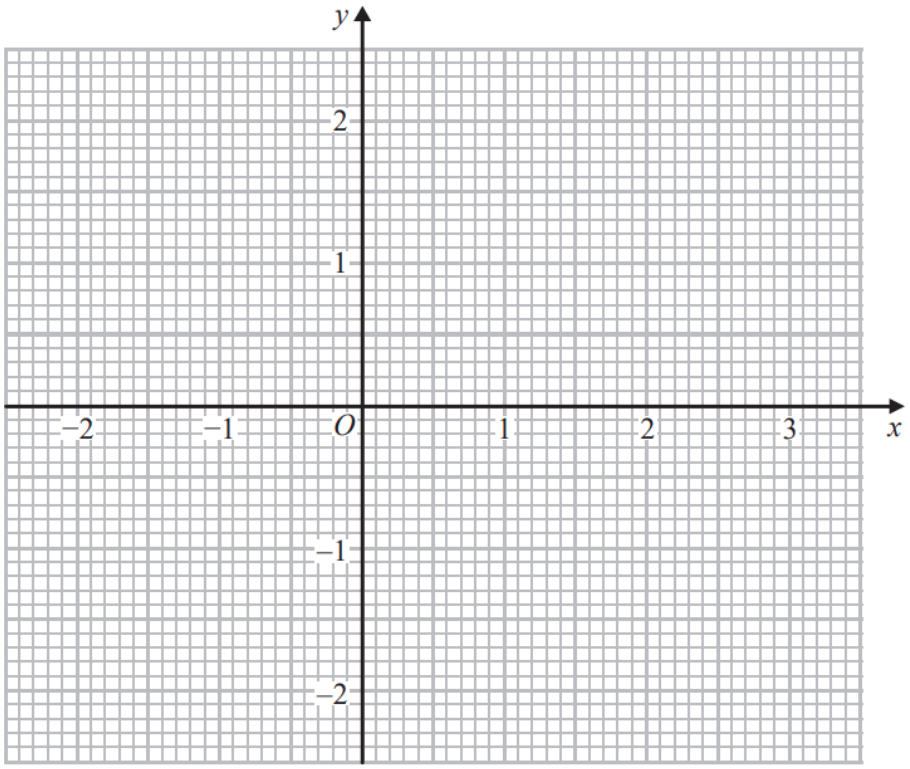
(Total for Question 9 is 4 marks)

13 (a) Complete the table of values for $y = \frac{1}{2}x - 1$

x	−2	−1	0	1	2	3
y	−2				0	

(2)

(b) On the grid, draw the graph of $y = \frac{1}{2}x - 1$ for values of x from −2 to 3



(2)

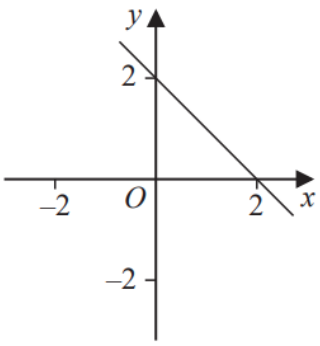
(c) Use your graph to find the value of x when $y = 0.3$

$x =$ .....

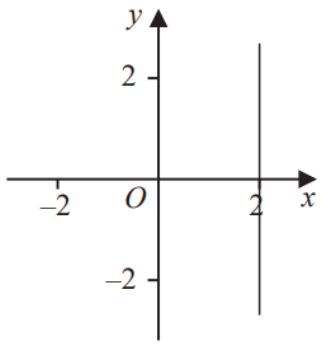
(1)

(Total for Question 13 is 5 marks)

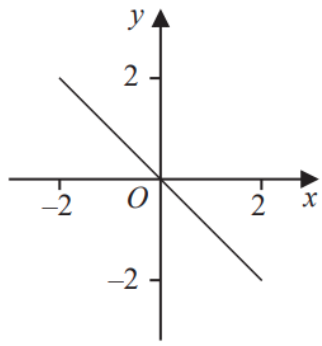
13 Here are six straight line graphs.



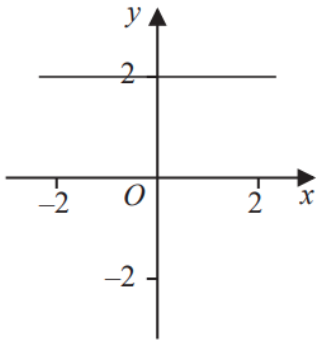
Graph **A**



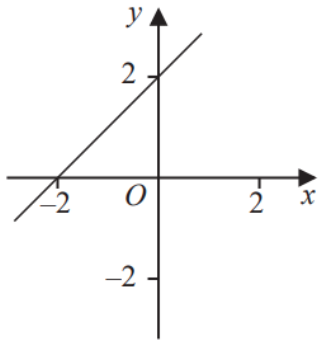
Graph **B**



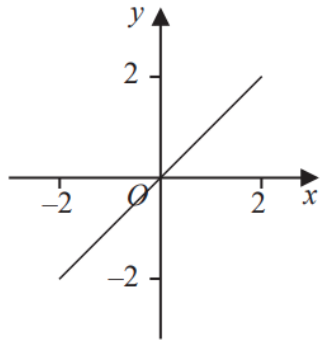
Graph **C**



Graph **D**



Graph **E**



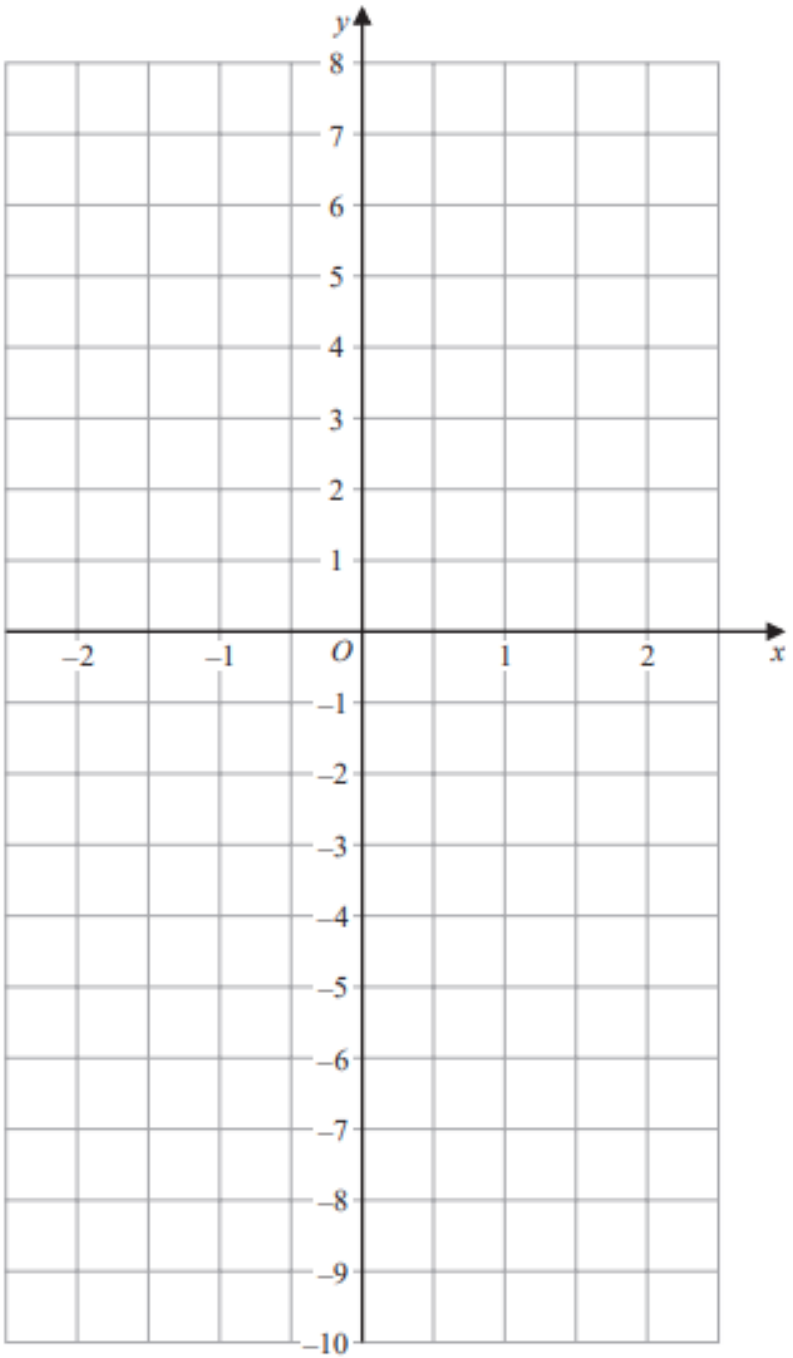
Graph **F**

Match each equation in the table to the correct graph.
Write the letter of the graph in the table.

Equation	Graph
$y = 2$	
$y = x$	
$x + y = 2$	

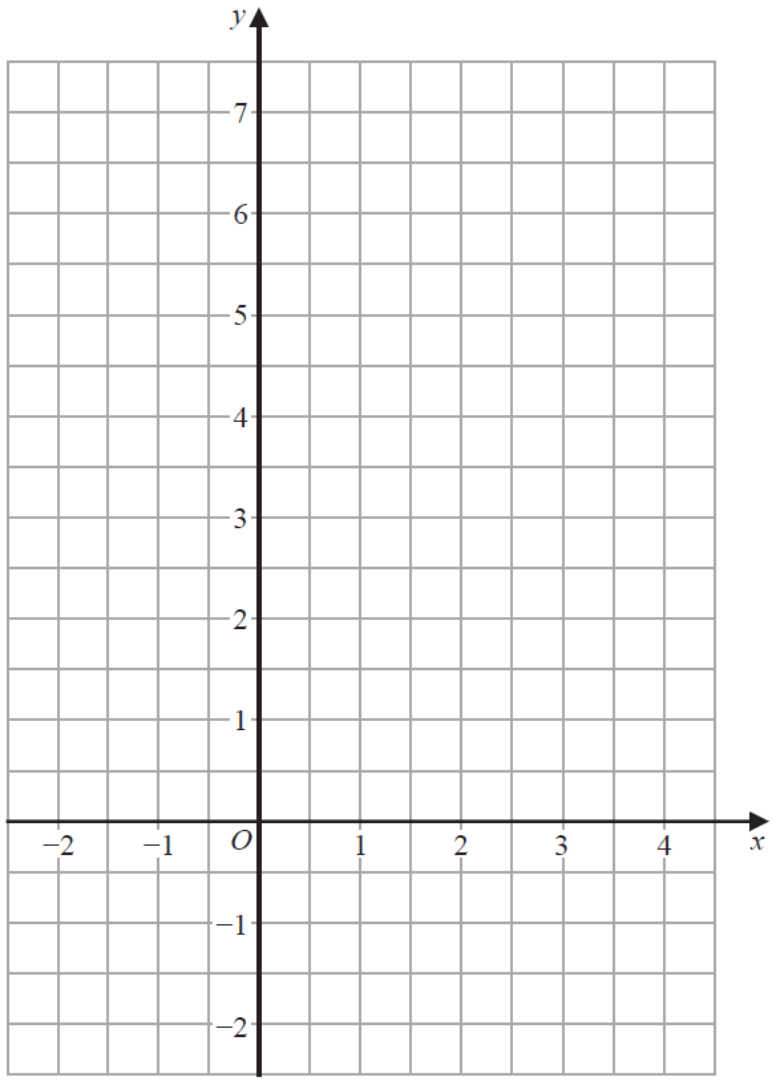
May 2018 – Paper 3F **(Total for Question 13 is 2 marks)**

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



(Total for Question 14 is 3 marks)

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



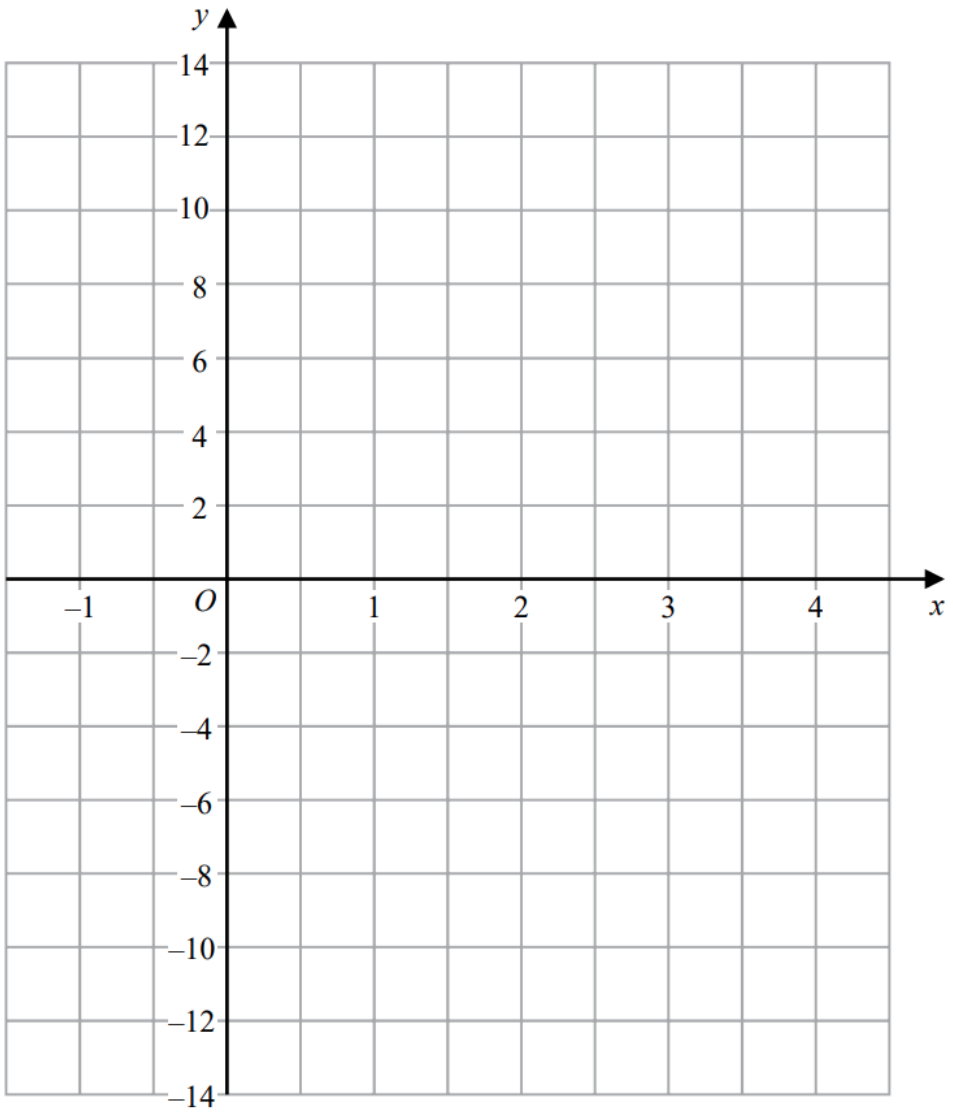
(Total for Question 17 is 3 marks)

17 (a) Complete the table of values for $y = 4x - 6$

x	-1	0	1	2	3	4
y			-2			10

(2)

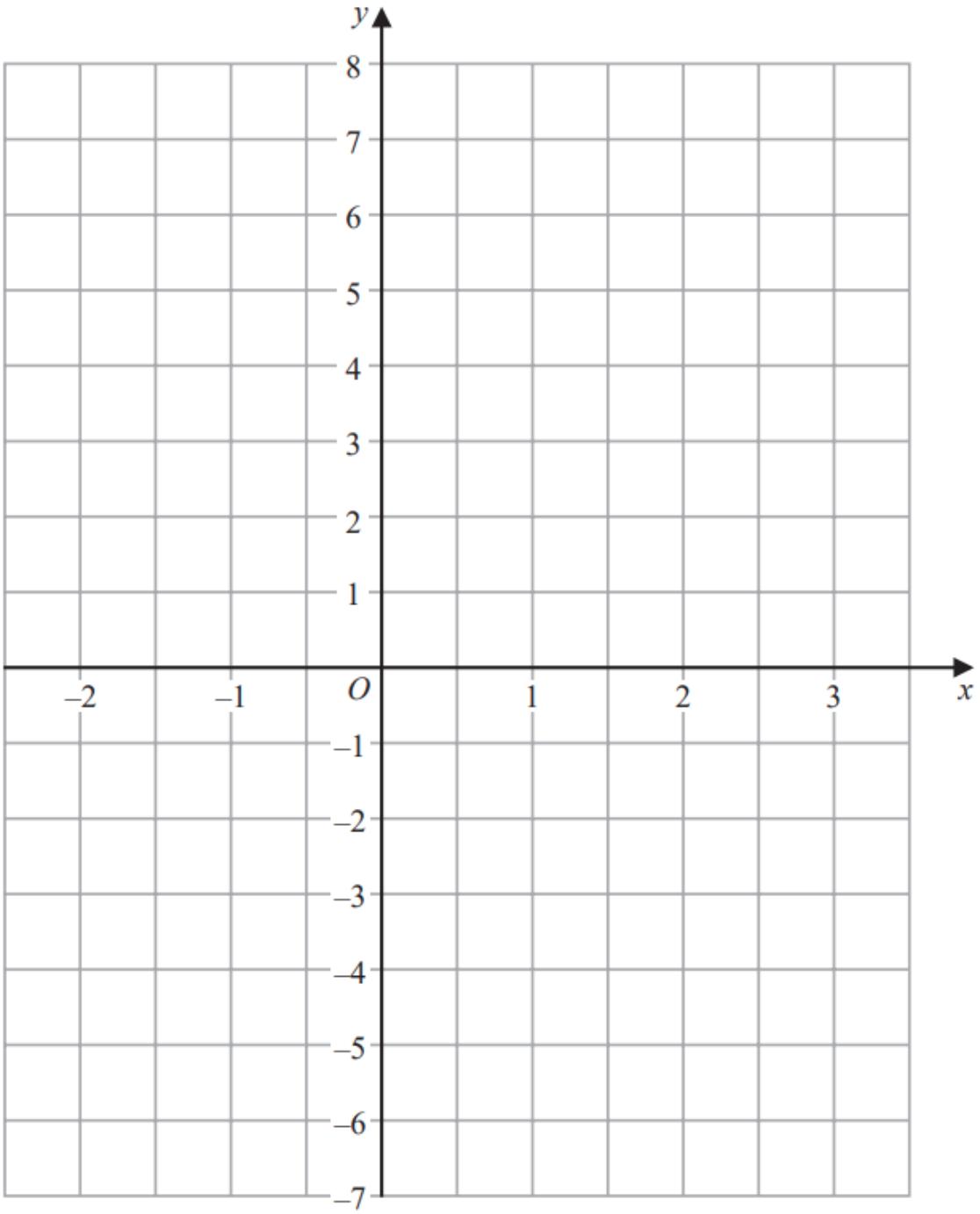
(b) On the grid, draw the graph of $y = 4x - 6$ for values of x from -1 to 4



(2)

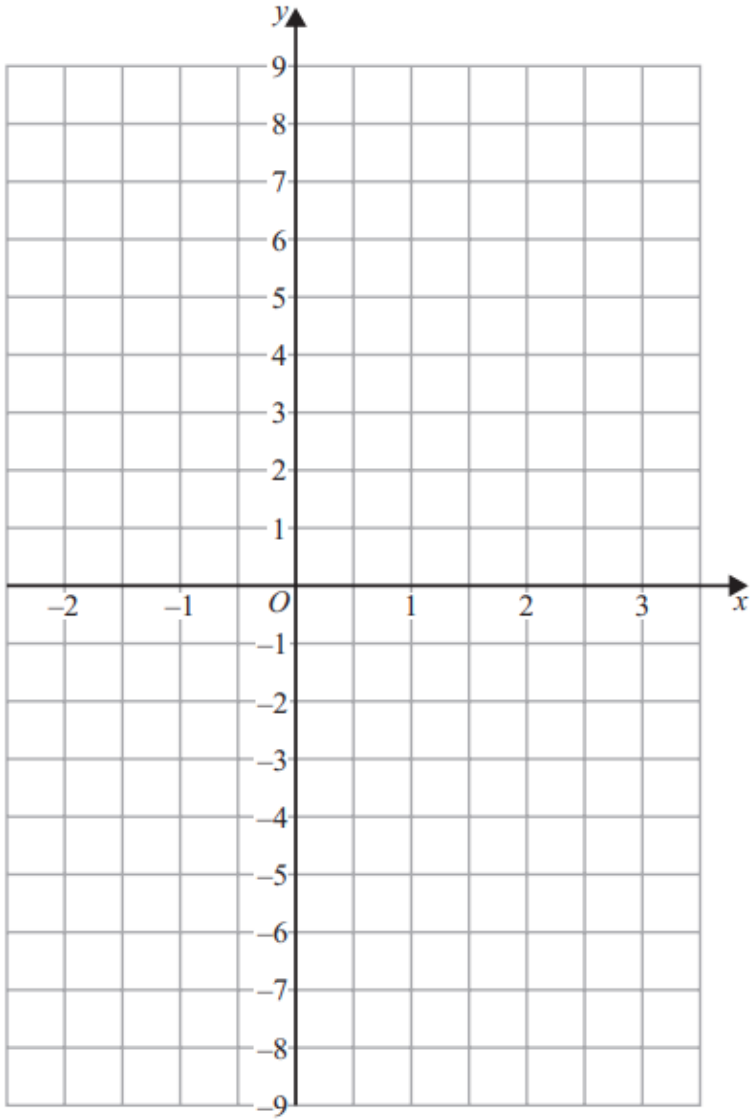
(Total for Question 17 is 4 marks)

18 On the grid below, draw the graph of $y = 2x - 2$ for values of x from –2 to 3



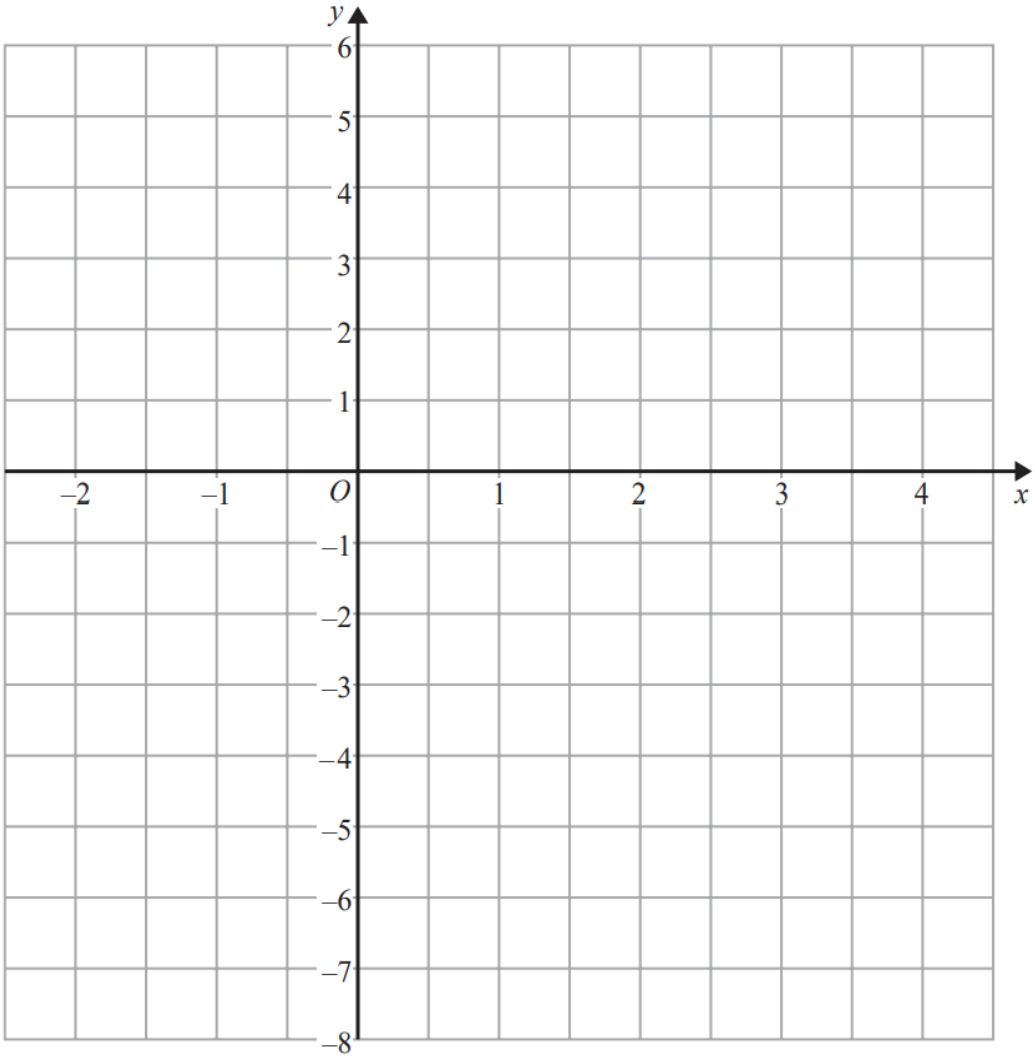
(Total for Question 18 is 3 marks)

19 On the grid below, draw the graph of $y = 3x - 2$ for values of x from -2 to 3



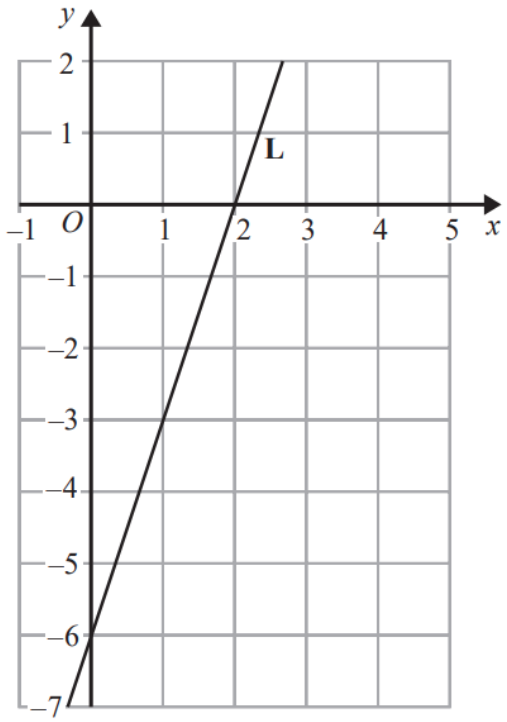
(Total for Question 19 is 3 marks)

21 On the grid below, draw the graph of $y = 2x - 3$ for values of x from -2 to 4



(Total for Question 21 is 3 marks)

22 The line **L** is shown on the grid.

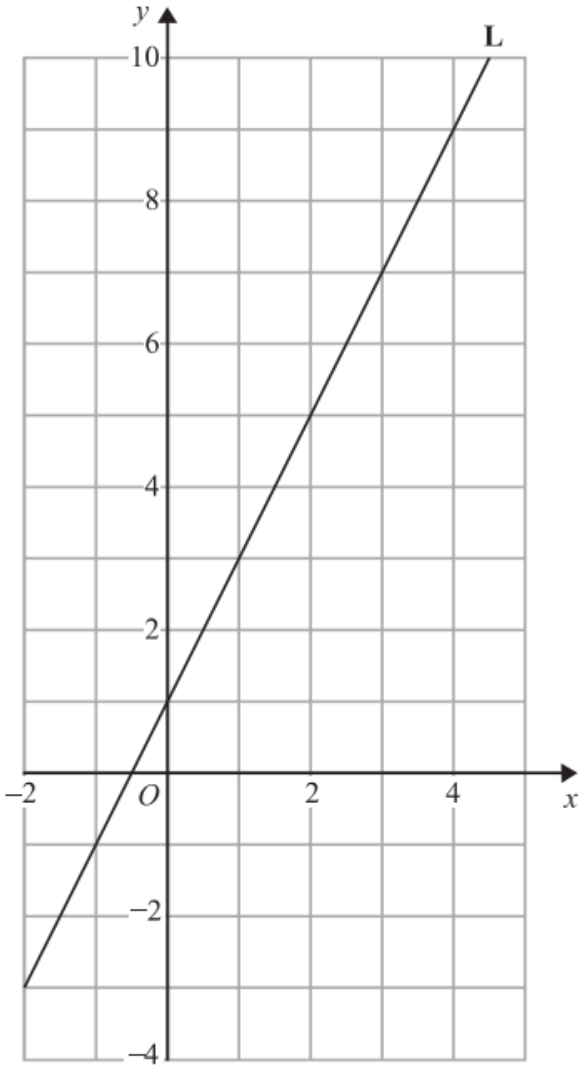


Find an equation for **L**.

.....

(Total for Question 22 is 3 marks)

23 Line **L** is drawn on the grid below.



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

.....

(Total for Question 23 is 3 marks)

25 The points L, M and N are such that LMN is a straight line.

The coordinates of L are $(-3, 1)$

The coordinates of M are $(4, 9)$

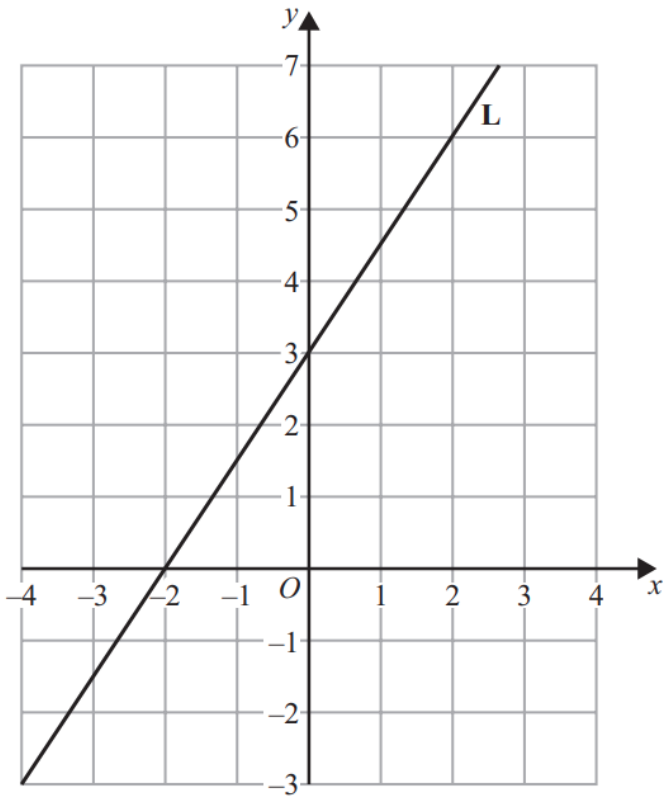
Given that $LM : MN = 2 : 3$,

find the coordinates of N.

(..... , ...)

June 2022 – Paper 2F **(Total for Question 25 is 4 marks)**

25 Here is a straight line **L** drawn on a grid.



(a) Find an equation for **L**.

.....

(3)

M is a different straight line with equation $y = 5x$

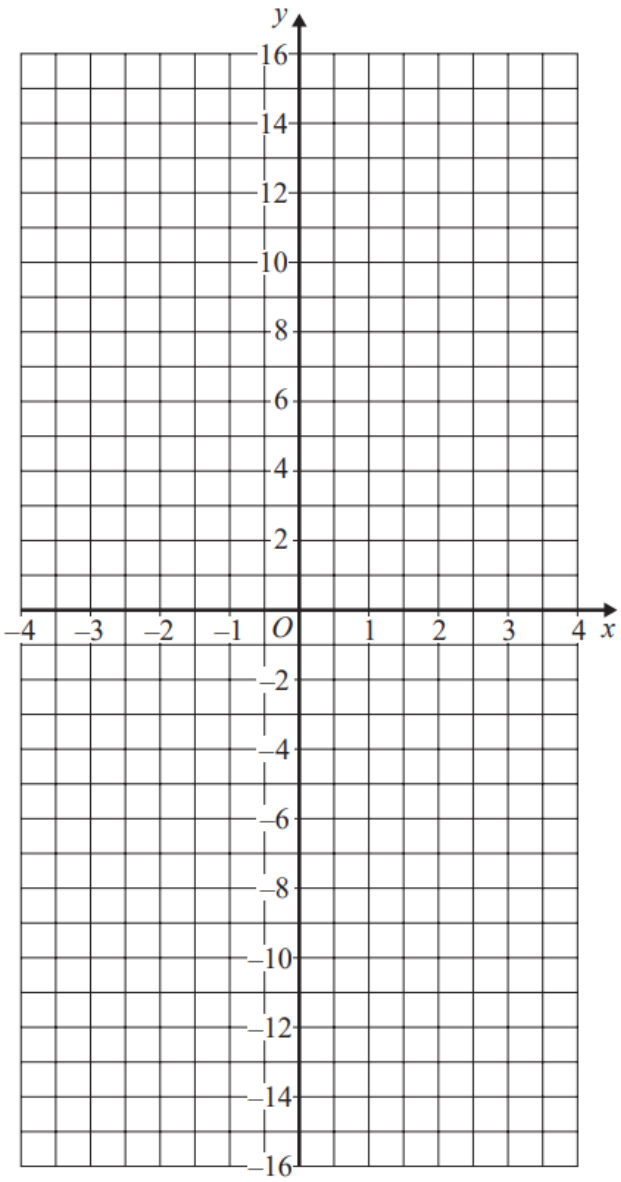
(b) Write down the equation of a straight line parallel to **M**.

.....

(1)

(Total for Question 25 is 4 marks)

25 On the grid below, draw the graph of $y = 1 - 4x$ for values of x from -3 to 3



(Total for Question 25 is 3 marks)

25 A is the point with coordinates (5, 9)
B is the point with coordinates (d, 15)

The gradient of the line AB is 3

Work out the value of d.

.....

(Total for Question 25 is 3 marks)

26 The equation of the line L_1 is $y = 3x - 2$
The equation of the line L_2 is $3y - 9x + 5 = 0$

Show that these two lines are parallel.

June 2017 – Paper 1F **(Total for Question 26 is 2 marks)**

27 Here are the equations of four straight lines.

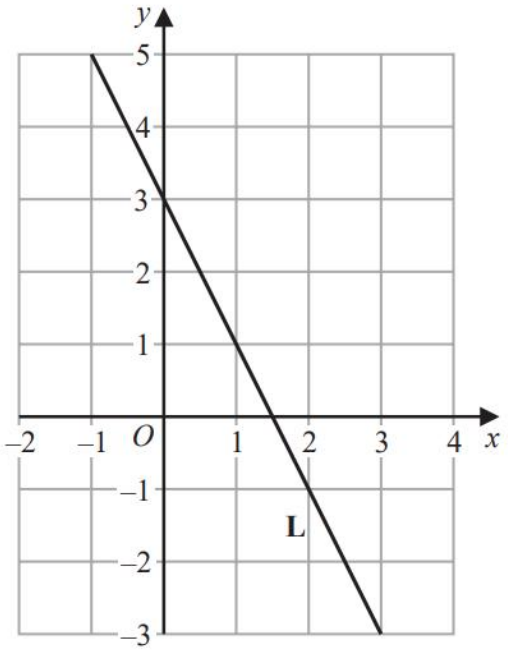
Line A $y = 2x + 4$
Line B $2y = x + 4$
Line C $2x + 2y = 4$
Line D $2x - y = 4$

Two of these lines are parallel.
Write down the two parallel lines.

Line ..... and line.....

(Total for Question 27 is 1 mark)

28 The line **L** is shown on the grid.



Find an equation for **L**.

.....

(Total for Question 28 is 3 marks)

28 The equation of a straight line **L** is $y = 3 - 4x$

(i) Write down the gradient of **L**.

.....

(1)

(ii) Write down the coordinates of the point where **L** crosses the y-axis.

(..... , ...)

(1)

(Total for Question 28 is 2 marks)

29 Write down the gradient of the line with equation $y = 2x + 3$

.....

May 2020 – Paper 2F **(Total for Question 29 is 1 mark)**