Linear Graphs y = mx + c

Question Paper

Course	Edexcel IGCSE Maths
Section	3. Sequences, Functions & Graphs
Topic	Linear Graphs y = mx + c
Difficulty	Medium

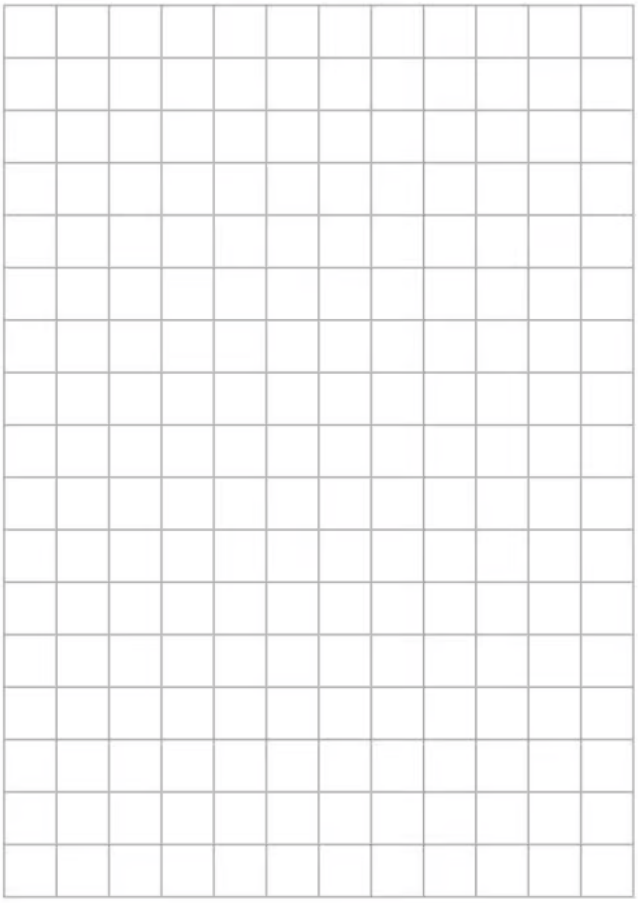
Time allowed: 70

Score: /58

Percentage: /100

Question 1

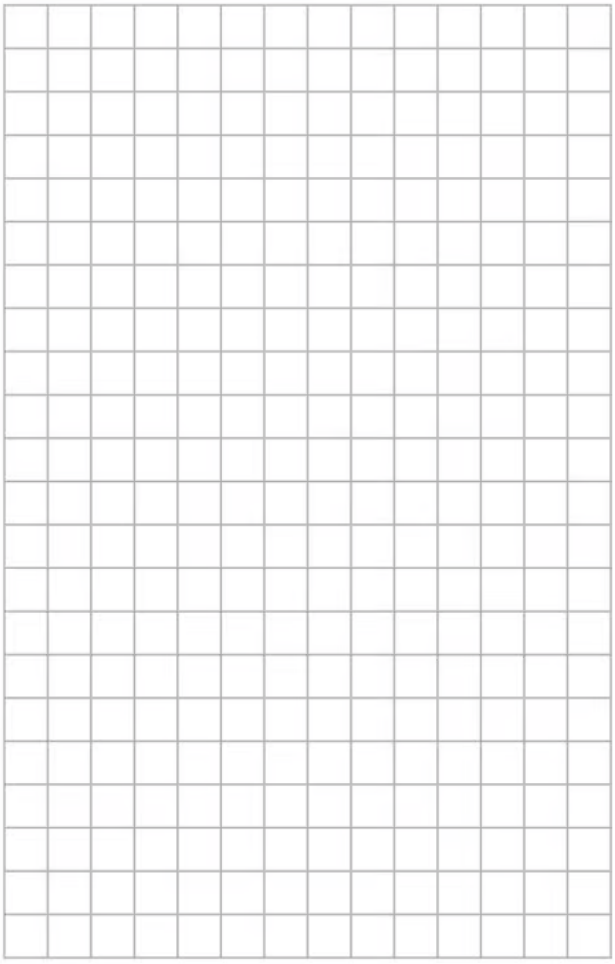
On the grid, draw the graph of $y = 2x - 3$ for values of x from -2 to 3



[4 marks]

Question 2

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



[4 marks]

Question 3

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.

[2 marks]

Question 4

L_1 and L_2 are parallel lines.

The equation of L_1 is $y = 3x + 2$

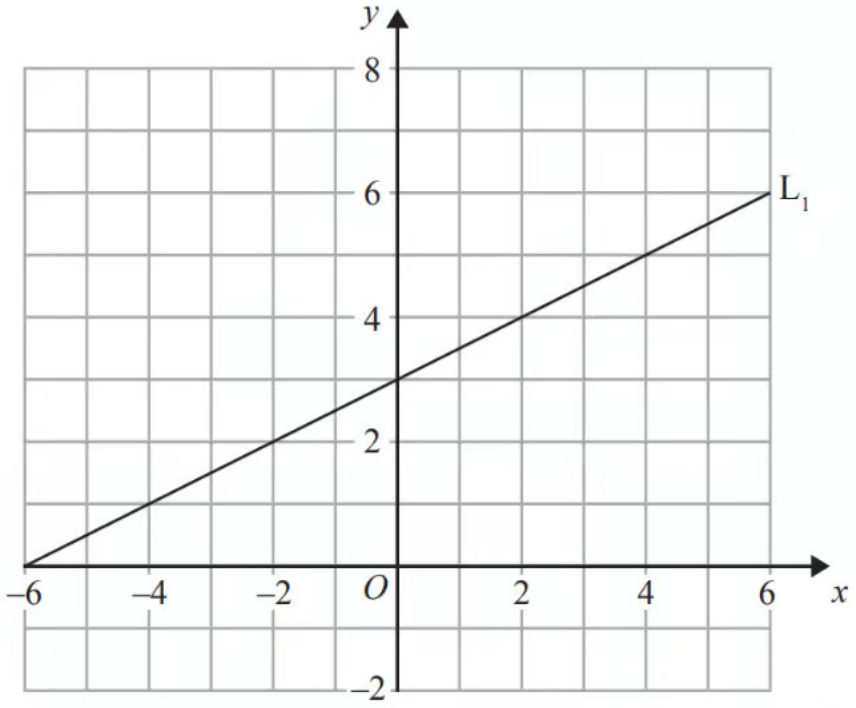
L_2 passes through the point $(3, 4)$.

Find an equation for L_2.

[3 marks]

Question 5

The diagram shows a straight line, L_1, drawn on a grid.



A straight line, L_2, is parallel to the straight line L_1 and passes through the point $(0, -5)$.

Find an equation of the straight line L_2.

[3 marks]

Question 6a

AB is a line segment.

The midpoint of the line segment AB has coordinates (3, 5)
Point A has coordinates (9, 2)

Work out the coordinates of point B.

[2 marks]

Question 6b

Work out an equation of the straight line that passes through (9, 2) and (3, 5)

[3 marks]

Question 7a

The line l_1 has equation $3x + 5y - 2 = 0$

Find the gradient of l_1.

[2 marks]

Question 7b

The line l_2 is perpendicular to l_1 and passes through the point (3, 1).

Find the equation of l_2 in the form $y = mx + c$, where m and c are constants.

[3 marks]

Question 8

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?

[1 mark]

Question 9

The straight line $\mathbf{L}_1$ has equation $x + 2y = 4$

The straight line $\mathbf{L}_2$ passes through the points $(-1, -7)$ and $(7, 9)$

Michael says that the lines $\mathbf{L}_1$ and $\mathbf{L}_2$ are perpendicular.

Is Michael correct?
You must show clearly how you get your answer.

[3 marks]

Question 10

The straight line $\mathbf{L_1}$ has equation $2y = 6x - 5$

The straight line $\mathbf{L_2}$ is perpendicular to $\mathbf{L_1}$ and passes through the point (9 , -1)

Find an equation for $\mathbf{L_2}$

Give your answer in the form $ay + bx = c$

[4 marks]

Question 11

The equation of a straight line is $3x + 2y = 24$

Circle the point where the line crosses the x-axis.

(0, 8) (12, 0) (0, 12) (8, 0)

[1 mark]

Question 12

A straight line

has gradient 6
and
passes through the point (3, 19)

Work out the equation of the line.

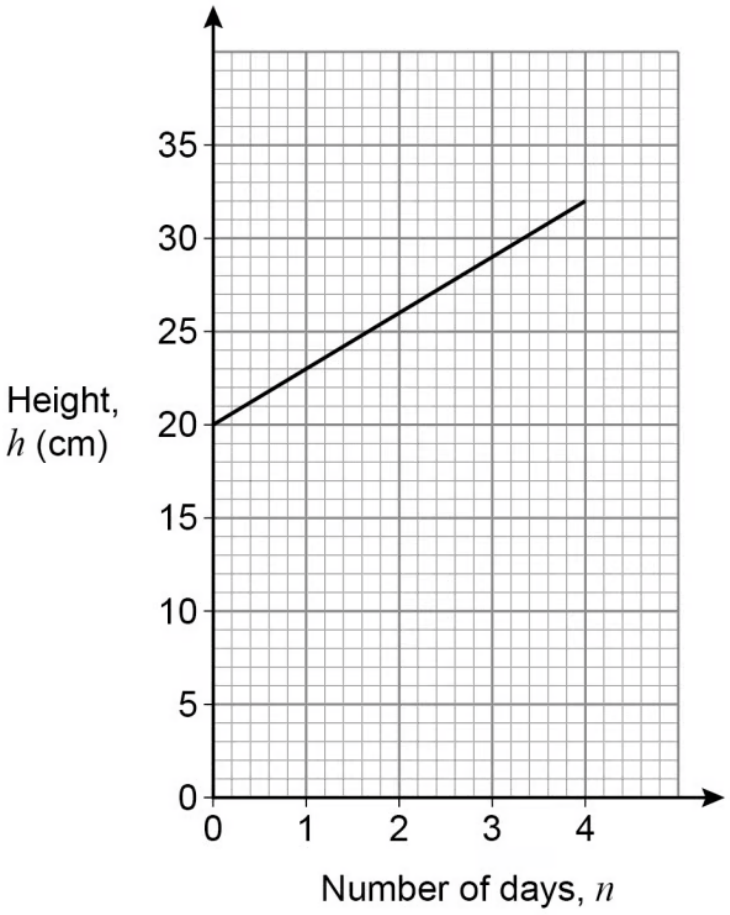
Give your answer in the form $y = mx + c$

[3 marks]

Question 13

Jim buys a plant of height 20 cm.

The graph shows how the height of the plant changes during the next 4 days.

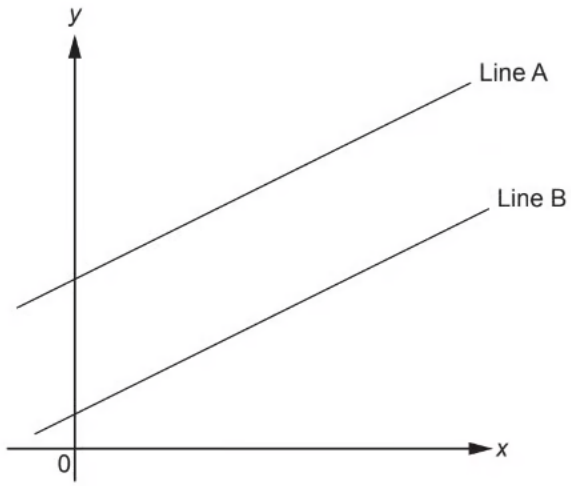


Work out a formula for h in terms of n.

[3 marks]

Question 14

The graph shows two parallel lines, Line A and Line B.



Not to scale

Line A has equation $y = 6x + 7$.
Line B passes through the point (4, 26).

Find the equation of Line B.

[4 marks]

Question 15

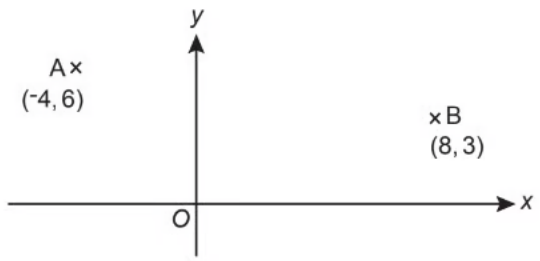
A straight line passes through the point (0, 6) and is perpendicular to $y = 4x - 5$.

Find the equation of this line, giving your answer in the form $y = mx + c$.

[3 marks]

Question 16a

Point A has coordinates (-4, 6) and point B has coordinates (8, 3).



Not to scale

(i)
Find the gradient of line AB.

[2]

(ii)
Find the equation of line AB.

[2]

[4 marks]

Question 16b

Point P has coordinates (0, -2).

Write down the equation of the line parallel to line AB that passes through P.

[2 marks]

Question 17

Show that line $3y = 4x - 14$ is perpendicular to line $4y = -3x + 48$.

[4 marks]