1 Find the gradient of the straight line with equation $5x + 2y = 7$

.....

(Total for Question 1 is 2 marks)

2 P and Q are two points.

The coordinates of P are $(-1, 6)$

The coordinates of Q are $(5, -4)$

Find an equation of the perpendicular bisector of PQ.
Give your answer in the form $ax + by + c = 0$ where a, b and c are integers.

.....

(Total for Question 2 is 6 marks)

3 *ABCD* is a rhombus.

The diagonals, *AC* and *BD*, intersect at the point *M*.
The coordinates of *M* are (6, −11)

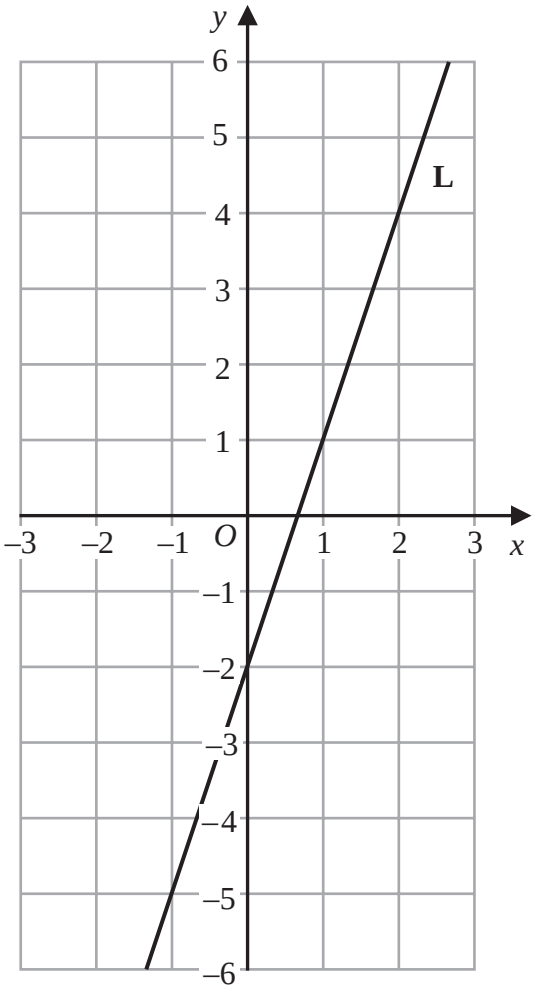
The points *A* and *C* both lie on the line with equation $2y + 7x = 20$

Find the exact coordinates of the point where the line through *B* and *D* intersects the *y*-axis.

(..... , ...)

(Total for Question 3 is 4 marks)

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



Find an equation for **L**.

.....

(Total for Question 4 is 2 marks)

5 (a) Write down an equation of a line that is parallel to the line with equation $y = 7 - 4x$

.....

(1)

(Total for Question 5 is 1 marks)

6 The straight line **L** passes through the points (4, −1) and (6, 4)

The straight line **M** is perpendicular to **L** and intersects the *y*-axis at the point (0, 8)

Find the coordinates of the point where **M** intersects the *x*-axis.

(..... , ...)

(Total for Question 6 is 4 marks)

7 *ABC* is an isosceles triangle with $AB = AC$.

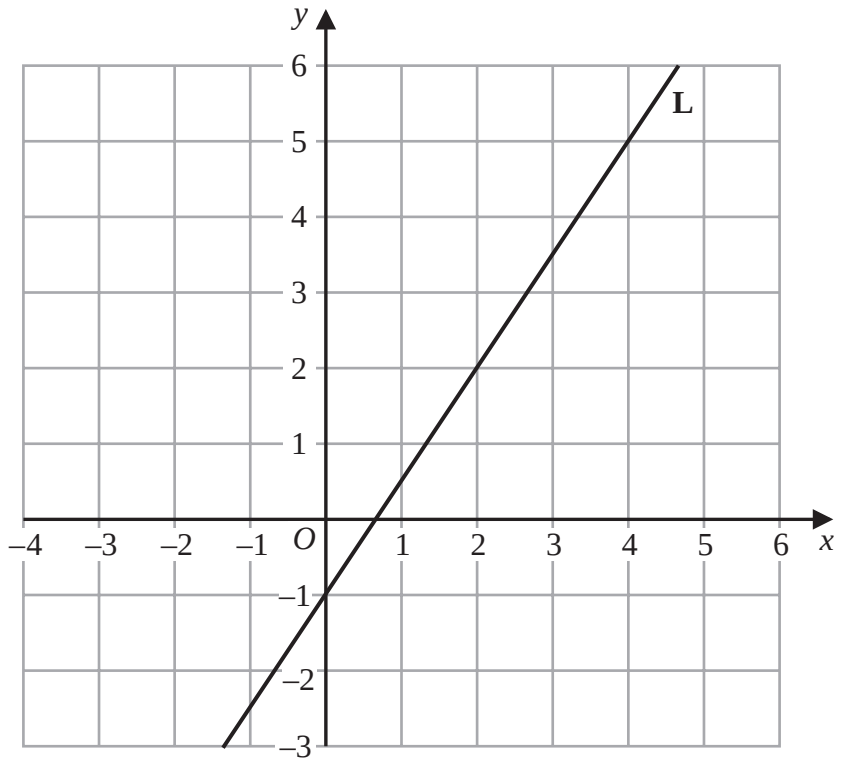
B is the point with coordinates (–1, 5)
C is the point with coordinates (2, 10)
M is the midpoint of *BC*.

Find an equation of the line through the points *A* and *M*.
Give your answer in the form $py + qx = r$ where p, q and r are integers.

.....

(Total for Question 7 is 5 marks)

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



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

.....

(Total for Question 8 is 3 marks)

9 *ABCD* is a kite, with diagonals *AC* and *BD*, drawn on a centimetre square grid, with a scale of 1 cm for 1 unit on each axis.

A is the point with coordinates (−3, 4)

The diagonals of the kite intersect at the point *M* with coordinates (0, 2)

Given that $AB = AD = 6.5$ cm and the x coordinate of *B* is positive,

find the coordinates of the points *B* and *D*.

(..... , ...)

(..... , ...)

(Total for Question 9 is 7 marks)

10 (a) Write down an equation of the straight line with gradient -3 and which passes through the point with coordinates $(0, 5)$

.....

(2)

(Total for Question 10 is 2 marks)

11 G is the point on the curve with equation $y = 8x^2 - 14x - 6$ where the gradient is 10
The straight line **Q** passes through the point G and is perpendicular to the tangent at G

Find an equation for **Q**
Give your answer in the form $ax + by + c = 0$ where a, b and c are integers.

.....

(Total for Question 11 is 5 marks)

12 *ABCD* is a kite.

AB = *AD* and *CB* = *CD*

The point *B* has coordinates (*k*, 1) where *k* is a negative constant.
The point *D* has coordinates (8, 7)

The straight line **L** passes through the points *B* and *D*

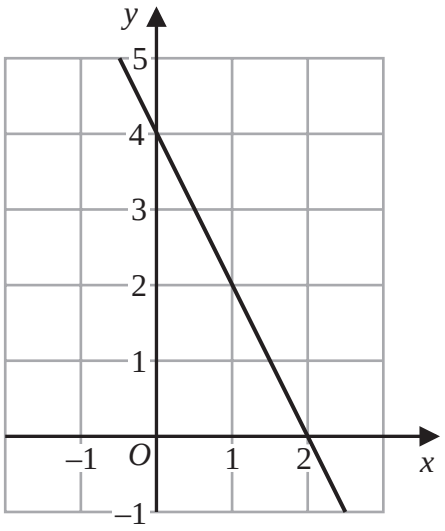
The straight line **L** is parallel to the line with equation $5y - 3x = 6$

Find an equation of *AC*
Give your answer in the form $px + qy = r$ where *p*, *q* and *r* are integers.
Show your working clearly.

.....

(Total for Question 12 is 6 marks)

13 The diagram shows a straight line drawn on a grid.



(d) Write down an equation of the line.

.....

(2)

(Total for Question 13 is 2 marks)

14 *A* is the point with coordinates (–5, 12)

B is the point with coordinates (19, –48)

Find an equation of the straight line that passes through the points *A* and *B*

.....

(Total for Question 14 is 3 marks)

15 $ABCD$ is a kite with $AB = AD$ and $CB = CD$

A is the point with coordinates $(-2, 10)$

B is the point with coordinates $\left(-\frac{27}{5}, 4\right)$

C is the point with coordinates $(4, -5)$

Work out the coordinates of D

(..... , ...)

(Total for Question 15 is 6 marks)