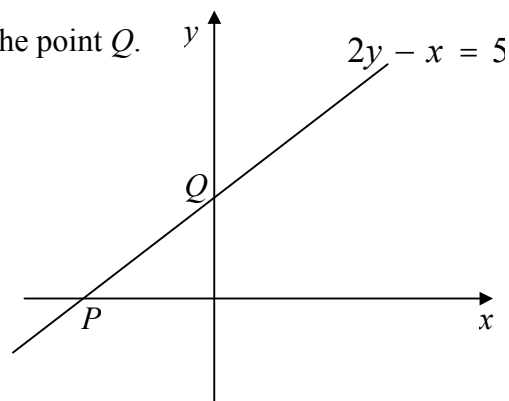
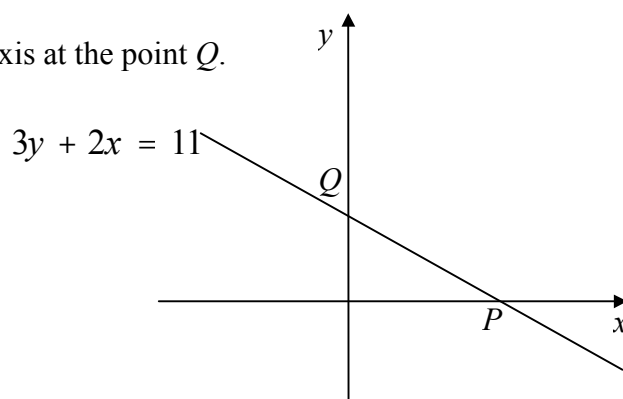


CO-ORDINATE GEOMETRY STRAIGHT LINES.

- 1) Find the equation of the line with gradient 3, passing through the point (1, 8).
- 2) Find the equation of the line with gradient -5 , passing through the point $(-1, 8)$.
- 3) a) Find, in the form $y = mx + c$, the equation of the line with gradient $\frac{2}{3}$ and passing through the point (2, 2)
b) Rearrange the formula to show that the equation of the line can be written $3y - 2x = 2$.
c) Use algebra to verify that the line passes through the point (8, 6).
- 4) a) Find the equation of the line which passes through the points (2, 2) and (5, 8).
b) Does the line pass through the point $(-2, 6)$? **Give a reason for your answer.**
- 5) a) Find the gradient of the line joining the points $A(-1, 2)$ and $B(3, 4)$.
b) Hence find the equation of the line joining the points A and B in the form $y = mx + c$.
c) Rearrange the formula to show that the equation of the line can be written $2y - x = 5$.
d) The line cuts the x -axis at the point P and the y -axis at the point Q .
Find the coordinates of P and Q .



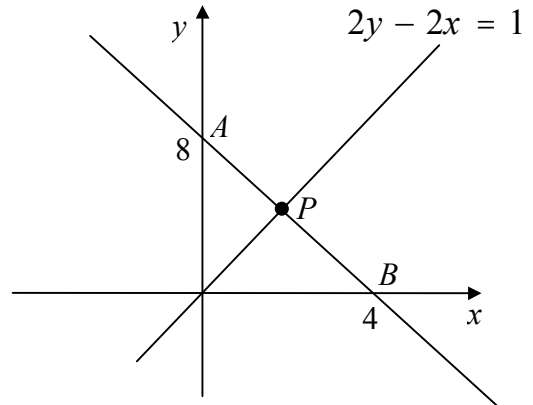
- 6) a) Find the gradient of the line joining the points $A(1, 3)$ and $B(4, 1)$.
b) Hence find the equation of the line joining the points A and B in the form $y = mx + c$.
c) Rearrange the formula to show that the equation of the line can be written $3y + 2x = 11$.
d) The line cuts the x -axis at the point P and the y -axis at the point Q .
Find the coordinates of P and Q .



- 7) a) The points A and B have coordinates $(0, 8)$ and $(4, 0)$ respectively.
Show that the equation of the line AB can be written $y + 2x = 8$.

- b) A second line has equation $2y - 2x = 1$ and intersects the line AB at the point P .

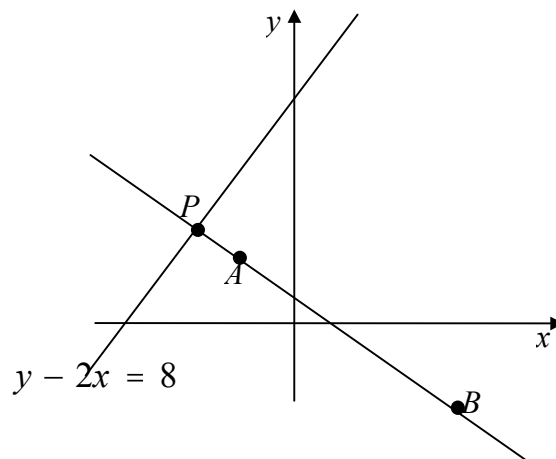
Use simultaneous equations to find the coordinates of P .



- 8) a) The points A and B have coordinates $(-1, 1)$ and $(3, -1)$ respectively.
Show that the equation of the line AB can be written $2y + x = 1$.

- b) A second line has equation $y - 2x = 8$ and intersects the line AB at the point P .

Use simultaneous equations to find the coordinates of P .



- 9) A triangle has vertices at $A(1, 4)$, $B(-3, 2)$, $C(6, -1)$.

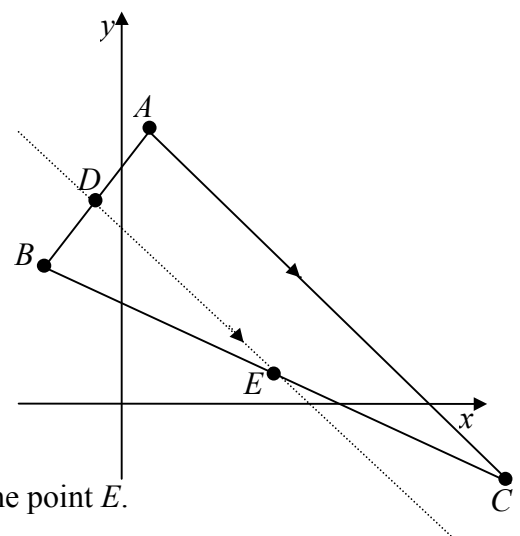
- a) Calculate the co-ordinates of D , the mid-point of AB .

The line through D parallel to AC meets BC at E .

- b) Calculate the gradient of the line DE .

- c) Show that the equation of the line DE can be written in the form $y + x = 2$.

- d) Find the equation of the line BC **and** the co-ordinates of the point E .



ANSWERS.

1) $y = 3x + 5$.

2) $y = -5x + 3$.

3) a) $y = \frac{2}{3}x + \frac{2}{3}$.

4) a) $y = 2x - 2$, b) No.

5) a) Gradient = $\frac{1}{2}$, b) $y = \frac{1}{2}x + \frac{5}{2}$, d) $P = (-5, 0)$, $Q = (0, 2.5)$.

6) a) Gradient = $-\frac{2}{3}$, b) $y = -\frac{2}{3}x + \frac{11}{3}$, d) $P = (5.5, 0)$, $Q = \left(0, 3\frac{2}{3}\right)$.

7) b) $P = (2.5, 3)$.

8) b) $P = (-3, 2)$.

9) a) $D = (-1, 3)$, b) gradient = -1 , d) $y = -\frac{1}{3}x + 1$ or $3y + x = 3$. $E = (1.5, 0.5)$.