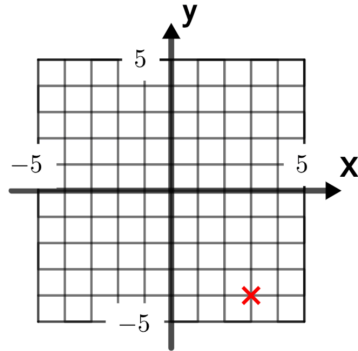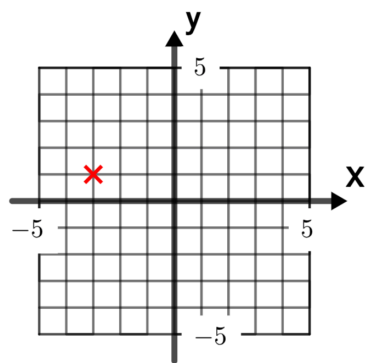# Coordinates and lines
Higher worksheet

1)   Write down the coordinates of the point shown.

2)   Write down the coordinates of the point shown.
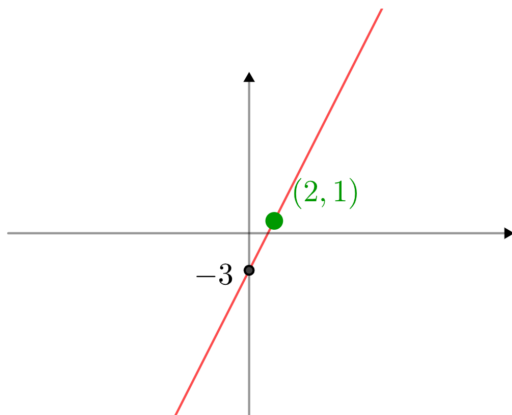

3)   Find the coordinates of the midpoint of (2, 11) and (8, 13).

4)   Find the coordinates of the midpoint of (−3, 1) and (−7, 5).

5)   Find the coordinates of the midpoint of (−4, −2) and (−7, 3).
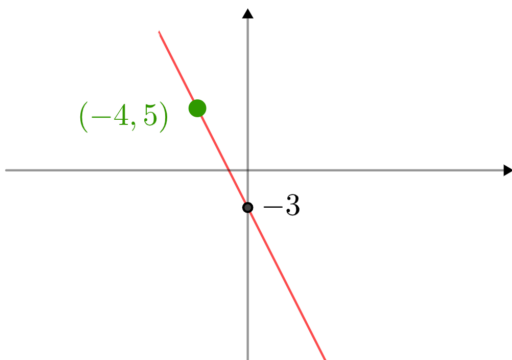
Coordinates and lines
Higher worksheet

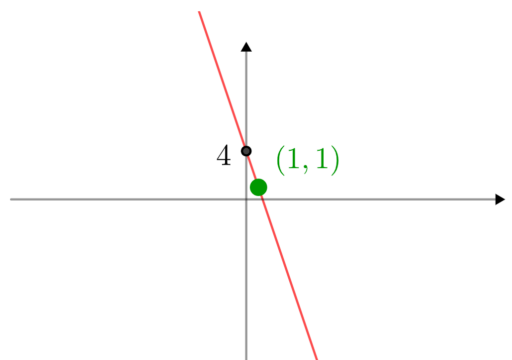6)   Find the equation of this line in the form $y = mx + c$.

$(2, 1)$

-3

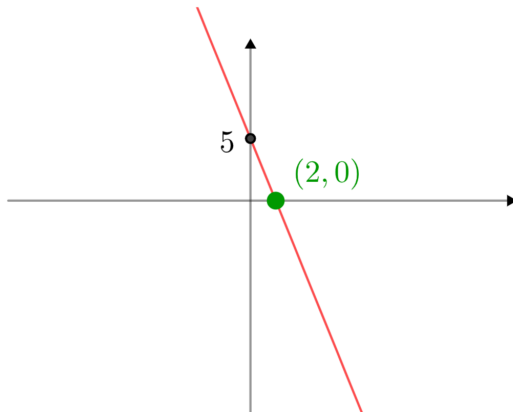7)   Find the equation of this line in the form $y = mx + c$.

$(-4, 5)$

-3

8)   Find the equation of this line in the form $y = mx + c$.

4 $(1, 1)$

Coordinates and lines
Higher worksheet

9)   Find the equation of this line in the form $y = mx + c$.

10) $(k, 11)$ is a point on the line $y = x$. Find k.

11) $(-4, u)$ is a point on the line $y = 3x + 2$. Find u.

12) $(p, 28)$ is a point on the line $y = 3x + 4$. Find p.

13)   Find the equation of the line parallel to $y = 2x - 3$ that passes through $(0, 7)$.

14) Find the equation of the line parallel to $y = -5$ that passes through $(0, 4)$.

15) Find the equation of the line parallel to $y = x + 7$ that passes through $(0, -2)$.

16) Find the equation of the line perpendicular to $y = 4$ that passes through $(7, -8)$.

17) Find the equation of the line perpendicular to $y = -3x - 2$ that passes through $(0, -5)$.

18) Find the equation of the line parallel to $y = -3x - 4$ that passes through $(1, -5)$.

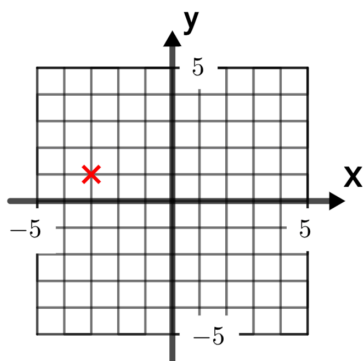19) $(-5, b)$ is a point on the line $y = x^2 + 8x + 12$. Find b.

Coordinates and lines
Higher worksheet

1)   Write down the coordinates of the point shown.
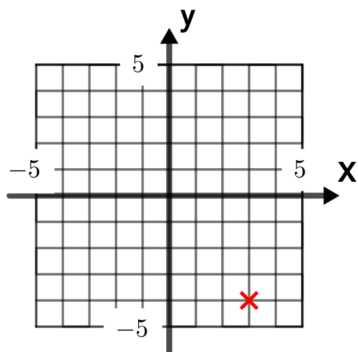
(3, −4)

2)   Write down the coordinates of the point shown.

(−3, 1)

3)   Find the coordinates of the midpoint of (2, 11) and (8, 13).

(5, 12)

4)   Find the coordinates of the midpoint of (−3, 1) and (−7, 5).

(−5, 3)

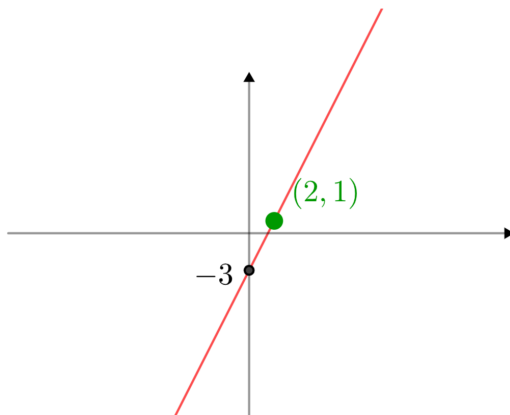5)   Find the coordinates of the midpoint of (−4, −2) and (−7, 3).

$\left(-5\frac{1}{2}, \frac{1}{2}\right)$
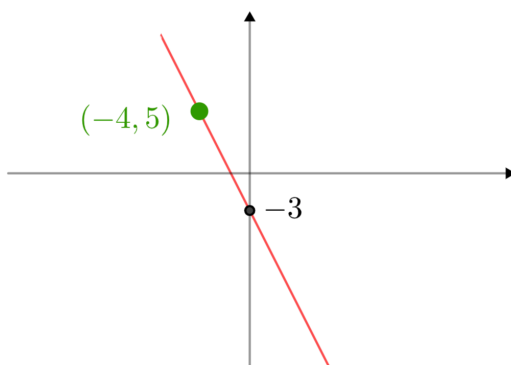
Coordinates and lines
Higher worksheet

6)   Find the equation of this line in the form $y = mx + c$.
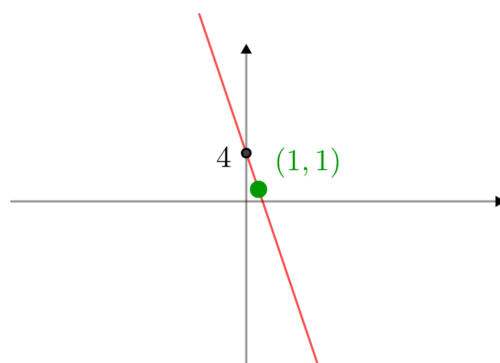

(2, 1)

−3

$y = 2x - 3$

7)   Find the equation of this line in the form $y = mx + c$.

(−4, 5)

−3

$y = -2x - 3$

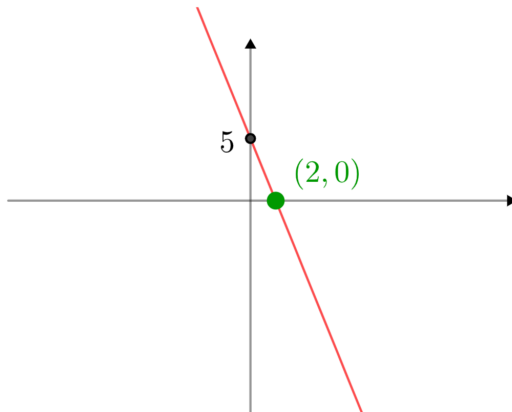8)   Find the equation of this line in the form $y = mx + c$.

4   (1, 1)

$y = -3x + 4$

Coordinates and lines
Higher worksheet

9)   Find the equation of this line in the form $y = mx + c$.

$y = -\frac{5}{2}x + 5$

10) $(k, 11)$ is a point on the line $y = x$. Find k.

$k = 11$

11) $(-4, u)$ is a point on the line $y = 3x + 2$. Find u.

Substituting $x = -4$, $y = u$ into $y = 3x + 2$:
$u = 3 \times -4 + 2 = -10$

12) $(p, 28)$ is a point on the line $y = 3x + 4$. Find p.

Substituting $x = p$, $y = 28$ into $y = 3x + 4$:
$$28 = 3p + 4$$
$\Rightarrow \quad 24 = 3p$
$\Rightarrow \quad 8 = p$

13)   Find the equation of the line parallel to $y = 2x - 3$ that passes through $(0, 7)$.

We need a gradient of 2 and a y-intercept of 7, so:
$y = 2x + 7$

14) Find the equation of the line parallel to $y = -5$ that passes through $(0, 4)$.

We need horizontal line (gradient 0) with a y-intercept of 4, so:
$y = 4$

15) Find the equation of the line parallel to $y = x + 7$ that passes through $(0, -2)$.

We need a gradient of 1 and a y-intercept of -2, so:
$y = x - 2$

16) Find the equation of the line perpendicular to $y = 4$ that passes through $(7, -8)$.

We need a vertical line through $(7, -8)$ so:
$x = 7$

17) Find the equation of the line perpendicular to $y = -3x - 2$ that passes through $(0, -5)$.

We need a gradient of $\frac{-1}{-3} = \frac{1}{3}$ and a y-intercept of -5, so:
$y = \frac{1}{3}x - 5$

18) Find the equation of the line parallel to $y = -3x - 4$ that passes through $(1, -5)$.

We need a line with gradient of -3 passing through $(1, -5)$.
Using $y - y_1 = m(x - x_1)$, we get:
$$y - -5 = -3(x - 1)$$
$\Rightarrow \quad y + 5 = -3x + 3$
$\Rightarrow \quad y = -3x - 2$

19) $(-5, b)$ is a point on the line $y = x^2 + 8x + 12$. Find b.

Substituting $x = -5$, $y = b$ into $y = x^2 + 8x + 12$:
$b = (-5)^2 + 8(-5) + 12 = -3$