

Coordinate Geometry Sheet 2

Answers that are expected are included on right.

1. Find the intersection of the following pairs of lines:

(a) $y = 3x - 2$ and $y = -6x - 10$.

$$\left(-\frac{8}{9}, -\frac{14}{3}\right)$$

(b) $2x + 5y = 10$ and $y = 3x + 8$.

$$\left(-\frac{30}{17}, \frac{46}{17}\right)$$

(c) $4x - 5y = 0$ and $2x + y = 1$.

$$\left(\frac{5}{14}, \frac{2}{7}\right)$$

2. Find the gradient of the line:

(a) $7x + 3y + 10 = 0$.

$$-\frac{7}{3}$$

(b) $bx + ay = 7$.

$$-\frac{b}{a}$$

3. Find the gradient of the line perpendicular to:

(a) $y = \frac{1}{3}x + 3$.

$$-3$$

(b) $2x - 7y = 0$.

$$-3\frac{1}{2}$$

(c) $rx + sy = t$.

$$\frac{s}{r}$$

4. Find the equation (in the form $ax + by = c$) of the following lines:

(a) Gradient 3 through the point $(\frac{1}{3}, 5)$.

$$3x - y = -4$$

(b) Gradient $-\frac{2}{5}$ through the point $(4, 2)$.

$$2x + 5y = 18$$

(c) Through the points $(3, 1)$ and $(8, -1)$.

$$2x + 5y = 11$$

(d) ★ Through the points $(0, s)$ and $(t, 0)$.

$$sx + ty = st$$

5. Find the equation of the perpendicular bisector to the points $(1, 3)$ and $(0, -5)$ in the form $ax + by = c$.

$$2x + 16y = -15$$

6. Find the equation of the line parallel to $3x - 7y = 1$ through $(2, -3)$ in the form $ax + by = c$.

$$3x - 7y = 27$$

7. Find the equation of the line perpendicular to $7x + 2y = 3$ through $(8, 3)$ in the form $ax + by = c$. Also find where this line crosses the y -axis and the x -axis.

$$2x - 7y = -5 \text{ and } (0, \frac{5}{7}) \text{ and } (-2\frac{1}{2}, 0)$$