The line l_1 has equation $2x + 5y + 6 = 0$

The line l_2 is perpendicular to the line l_1 and passes through the point $(2, -2)$

a) Find the equation of l_2 in the form $ax + by + d = 0$, where a, b and d are constants.

b) Find the coordinates where l_2 meets the y axis

---

a) Find the gradient of l_1

$$2x + 5y + 6 = 0$$

$$5y = -2x - 6$$

$$y = -\frac{2}{5}x - \frac{6}{5}$$

Gradient of $l_1 = -\frac{2}{5}$

Gradient of $l_2 = \frac{5}{2}$

l_2 has gradient $= \frac{5}{2}$

and passes through the point (2 , -2)

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

$$2y + 4 = 5x - 10$$

$$5x - 2y - 14 = 0$$

b) l_2 meets the y axis when x = 0

$$5(0) - 2y - 14 = 0$$

$$-2y = 14$$

$$y = -7$$

$$(0, -7)$$