Equations of Straight Lines

$$y = mx + c$$
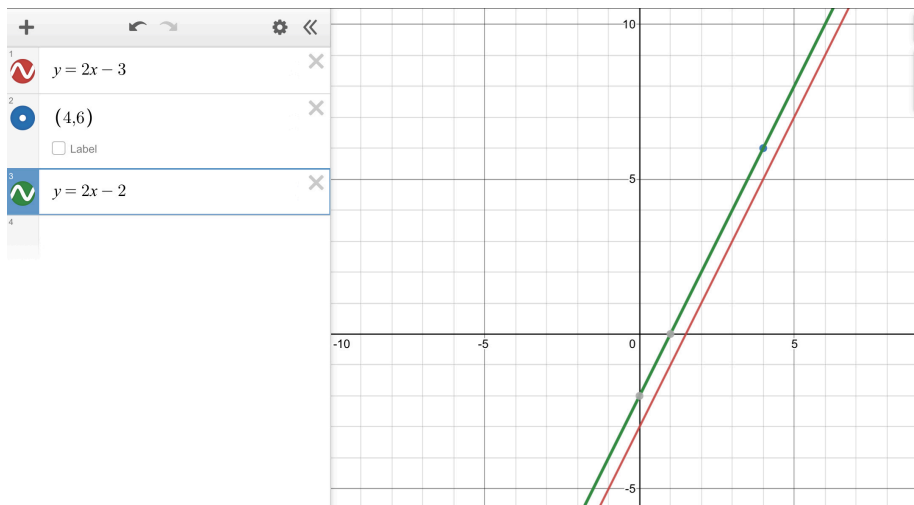
$$\uparrow \qquad \uparrow$$

gradient   y-intercept

Find eqn of line parallel to $y = 2x - 3$ passing through $(4, 6)$

Parallel lines have same gradient so line is of the form

$$y = 2x + c$$

Through $(4, 6)$ Sub in eqn

$$6 = 2(4) + c$$
$$6 = 8 + c$$
$$6 - 8 = c$$
$$-2 = c$$

Line is $y = 2x - 2$

Find eqn of line parallel to $y = 3x - 1$ passing through $(4, 8)$

Line of form $y = 3x + c$

Sub $(4, 8)$

$$8 = 3(4) + c$$
$$8 = 12 + c$$
$$8 - 12 = c$$
$$-4 = c$$

Line is $\underline{y = 3x - 4}$