Worksheet 2015-9ΣH-00003(1)

(1) Write each of the following equations in standard form and draw them on the same set of axes:

(a) $y + 2x - 1 = 0$

$y = -2x + 1$

$m = \frac{-2}{+1}$ ↓ →

$c = 1$

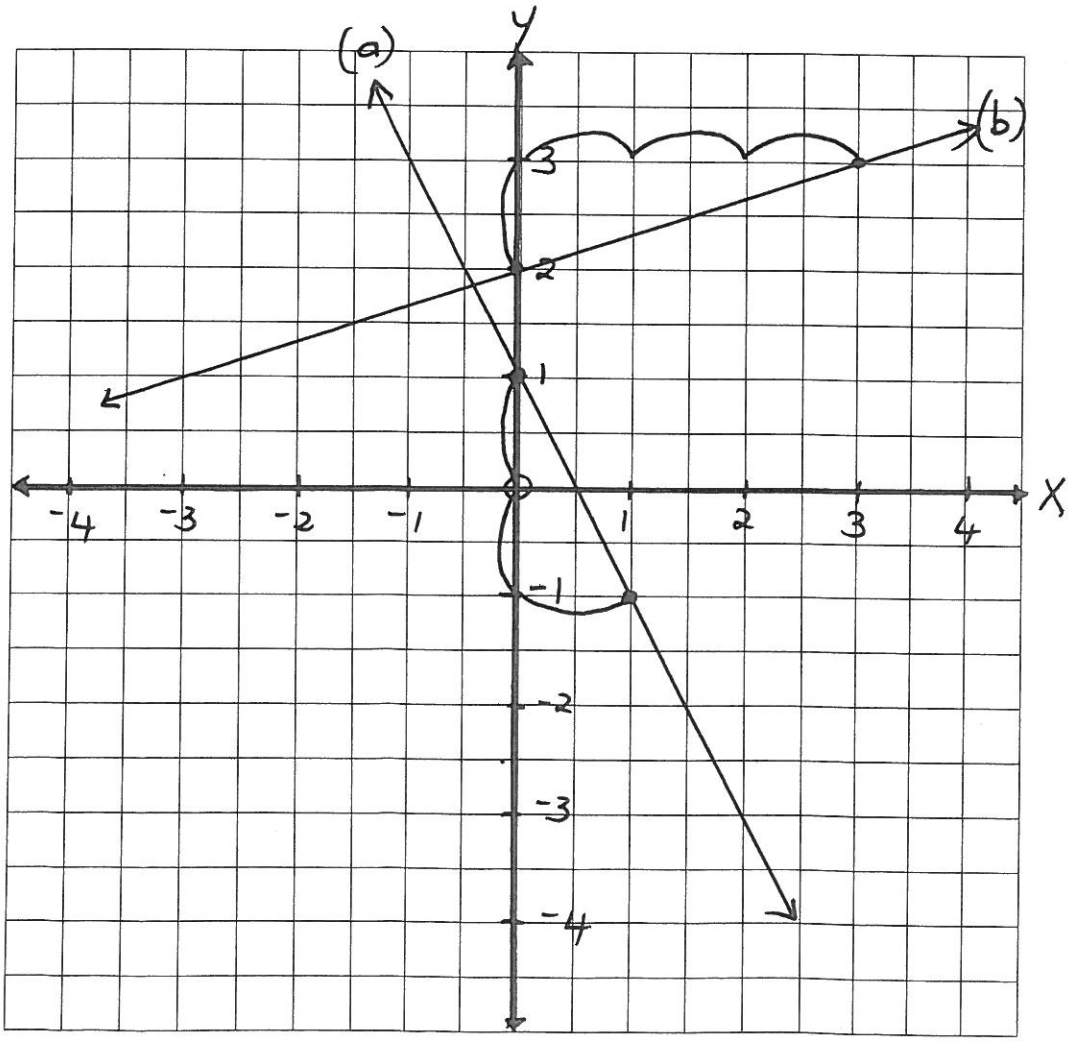
(b) $3y - x = 6$

$\frac{3y}{3} = \frac{x}{3} + \frac{6}{3}$

$\therefore y = \frac{1}{3}x + 2$

$\therefore m = \frac{+1}{+3}$ ↑ →

$c = 2$



(2) Find the equations of the following straight lines:

(a) through the point $(\overset{x}{0}\,;\,\overset{y}{-1})$ with a gradient of 2. $\quad m = c$

$y = mx + c$

$\therefore y = 2x - 1$

substitute $(\overset{x}{4}, \overset{y}{0})$ or $(\overset{x}{-2}, \overset{y}{6})$

(b) through the points $(\overset{x_1}{4}\,;\,\overset{y_1}{0})$ and $(\overset{x_2}{-2}\,;\,\overset{y_2}{6})$.

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{6-0}{-2-4}$

$m = \frac{6}{-6} = -1$

$\therefore y = mx + c$

$y = -1x + c$

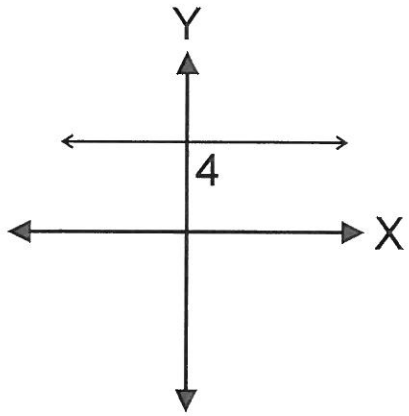
$0 = -1(4) + c$

$0 = -4 + c$

$4 = c$

$\therefore y = -1x + 4$

(c)



$y = 4$

(special line!)

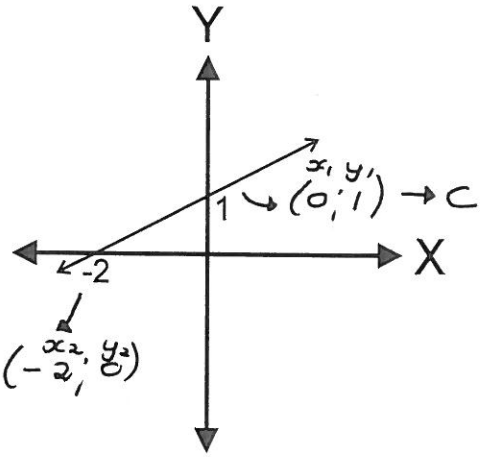
or

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{0-1}{-2-0}$

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

(d)



$y = mx + c$

$\therefore y = mx + 1$

$0 = m(-2) + 1$ → substitute $(\overset{x}{-2}, \overset{y}{0})$

$\therefore 0 = -2m + 1$

$2m = 1$

$m = \frac{1}{2}$

$\therefore y = \frac{1}{2}x + 1$