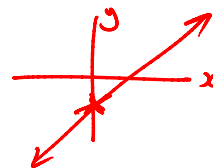


Unit 7 Linear Relations

7.5 Slope-Intercept Form of a Line

y-intercept: • where the line crosses the y-axis
• the value of y when $x = 0$



Slope-Intercept Form:

$$y = mx + b$$

$\swarrow$ slope
 $\swarrow$ coefficient of independent
 $\nwarrow$ y-intercept
 $\nwarrow$ constant term

Ex. State the slope and y-intercept of each linear relation, then graph using that information:

a) $y = \frac{2}{3}x - 3$

slope = $\frac{2}{3}$ $\left[\begin{array}{l} \text{rise} \\ \text{run} \end{array} \right]$

y-int = -3

b) $y = 2x + 4$

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

y-int = 4

c) $y = 3 - x$

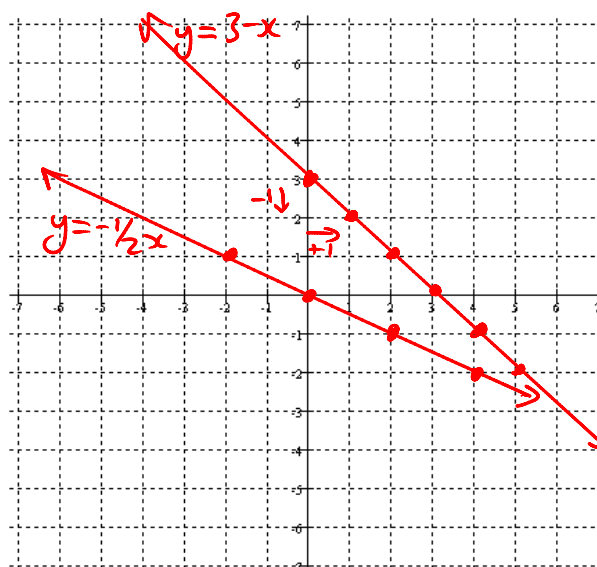
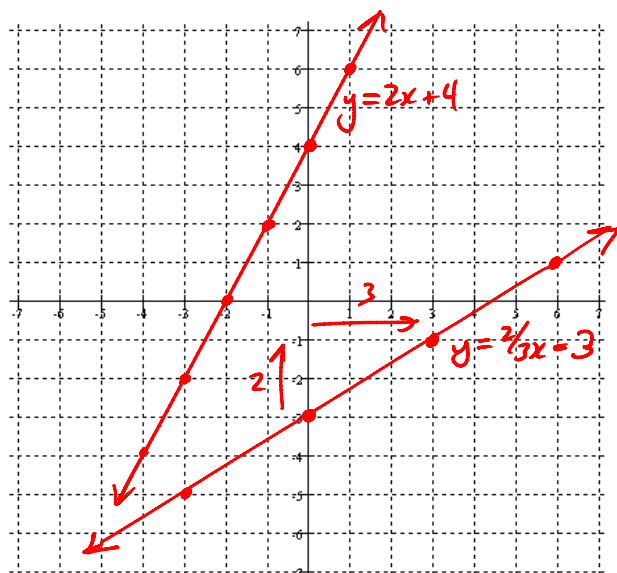
$y = -x + 3$
slope = $-\frac{1}{1}$

y-int = 3

d) $y = \frac{-1}{2}x + 0$

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

y-int = 0



Ex. Write the equation of a line with the given slope & y-intercept:

a) Slope $-\frac{3}{2}$ & y-intercept 5

$y = mx + b$

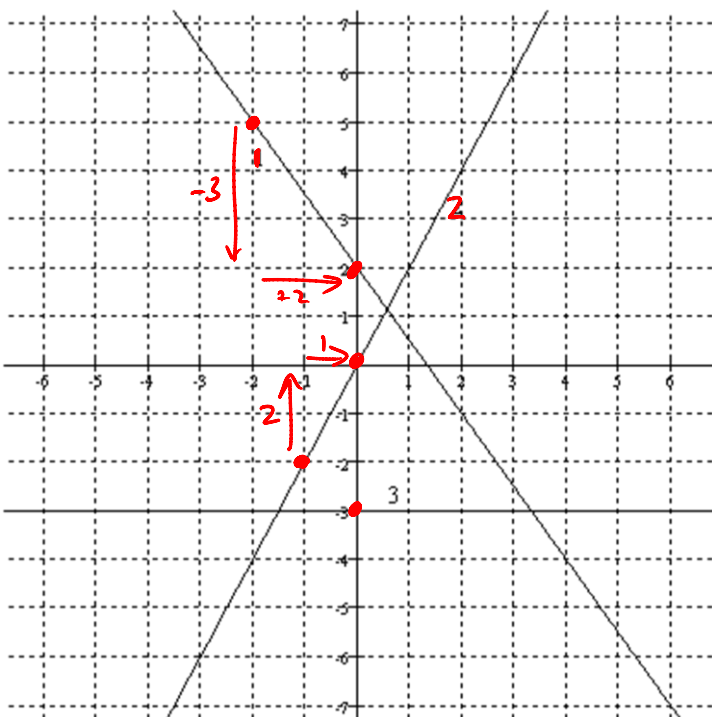
$y = -\frac{3}{2}x + 5$

b) Slope 1 & y-intercept -3

$y = mx + b$

$y = x - 3$

Ex. Determine the equation of each line shown below:

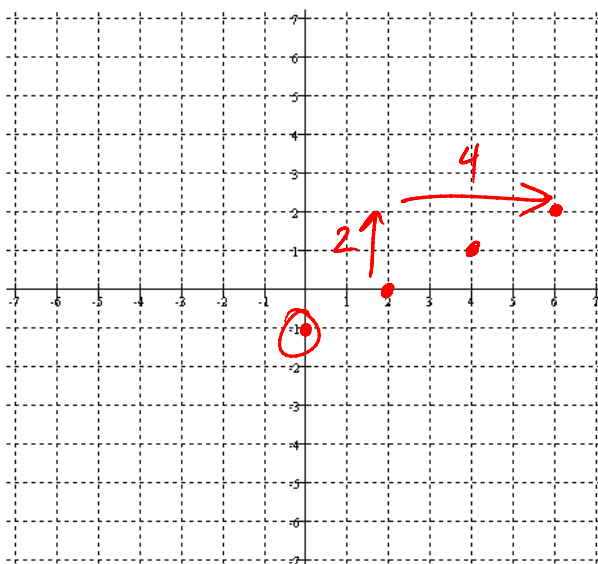


① $m = -\frac{3}{2}$ $b = 2$
 $y = mx + b$
 $y = -\frac{3}{2}x + 2$

② $m = \frac{2}{1} = 2$ $b = 0$
 $y = mx + b$
 $y = 2x$

③ $m = 0$ $b = -3$
 $y = mx + b$
 $y = 0x - 3$
 $y = -3$

Ex. Find the equation of the line passing through (2, 0) and (6, 2)



$m = \frac{2}{4}$
 $= \frac{1}{2}$ $b = -1$

$y = mx + b$
 $y = \frac{1}{2}x - 1$