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5.3 Slope-Intercept Form of a Linear Function – Part 1

The equation of a line in slope intercept form

The equation of a line can be written in the form : $y = mx + b$

where m = slope and b = y-intercept

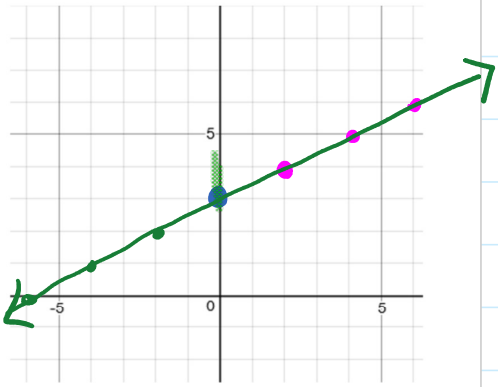
Example 1 : Graph the linear function : $y = \frac{1}{2}x + 3$

i) Identify the slope, m $m = \frac{1}{2}$ $\frac{\text{rise}}{\text{run}}$

ii) Identify the y-intercept, b $b = 3$

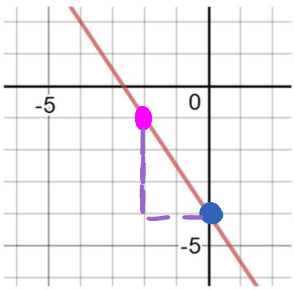
iii) Graph the y-intercept

iv) From the y-intercept, use the slope to find the rise and run, plot at the next point. rise = 1, run = 2



v) Draw a line that passes through the two points.

Example 2 : Write an equation for the line.



① y-intercept = -4, $b = -4$

② Find another good point

slope = $\frac{-3}{2}$

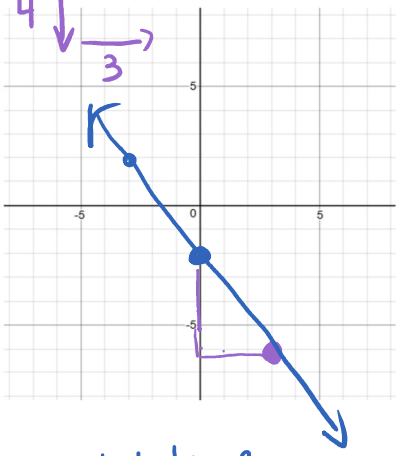
$y = mx + b$

$y = -\frac{3}{2}x - 4$

Example 3 : Find the slope and y-intercept of each function. Graph each function

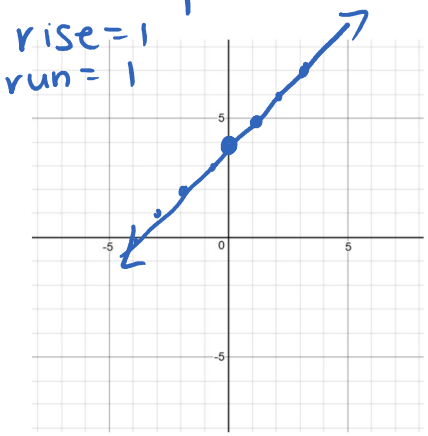
a) $y = -\frac{4}{3}x - 2$

$m = \frac{-4}{3}$ $b = -2$



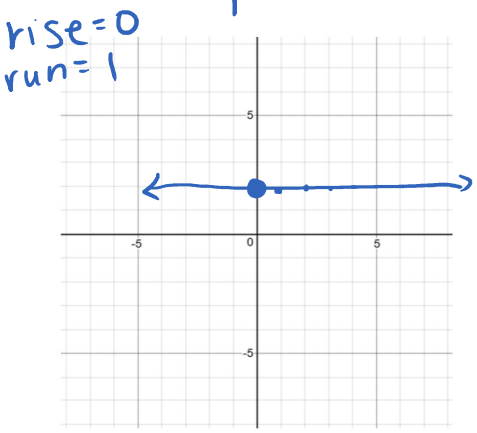
b) $y = x + 4$ $y = 1x + 4$

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



c) $y = 2$ Horizontal line $y = 0x + 2$

$m = \frac{0}{1}$ $b = 2$



d) $x = -3$ Vertical line

$m =$ No slope $b =$ None

x-int = -3