Notes: Linear Growth using Graphs

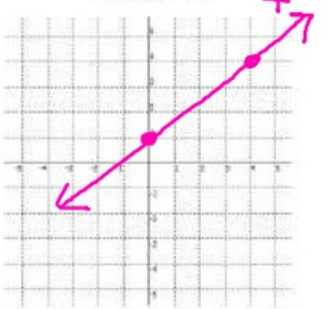
Review

Identify the *y-intercept* and *slope* of each equation, then draw the graph.
(Write slopes in fraction form)

1. $y = \frac{3}{4}x + 1$

(y – intercept) b = 1

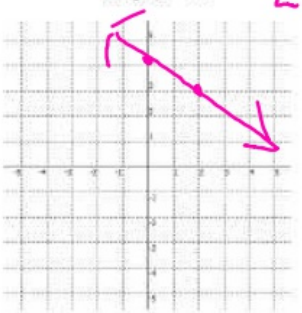
(slope) m = $\frac{3}{4}$



2. $y = -\frac{1}{2}x + 4$

(y – intercept) b = 4

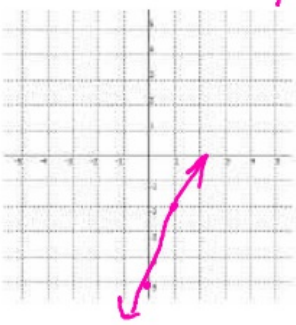
(slope) m = $-\frac{1}{2}$



3. $y = 3x - 5$

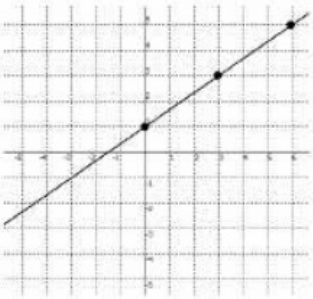
(y – intercept) b = −5

(slope) m = $\frac{3}{1}$



Identify the *y-intercept* and *slope* of each graph, then write the equation.

4.

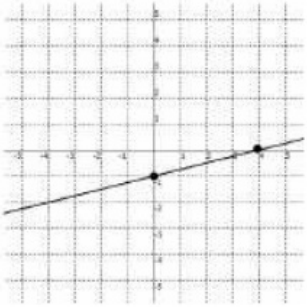


(y – intercept) b = 1

(slope) m = $\frac{2}{3}$

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

5.

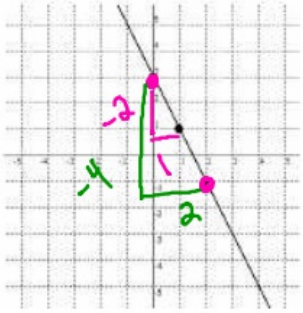


(y – intercept) b = 1

(slope) m = $\frac{1}{4}$

equation: ~~y=1/4x-1~~
$y = \frac{1}{4}x - 1$

6.



(y – intercept) b = 3

(slope) m = $\frac{-2}{1} = \frac{-4}{2}$

equation: $y = -\frac{2}{1}x + 3$

Interpreting Graphs

slope – intercept form of a line : $y = m \cdot x + b$

in other words . . . y = ***(rate of change)***x + ***beginning***

What does the y-intercept represent?

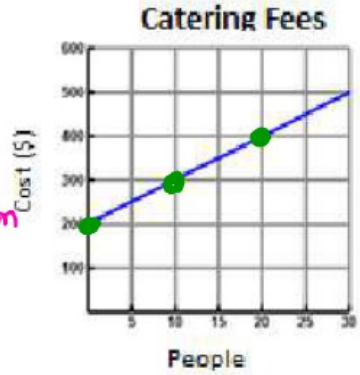
Initial cost of $200

Beginning value - step 0 ***(b)*** ? 200

Rate of change ***(m)*** ? $\frac{100 \text{ dollars}}{10 \text{ people}} = \frac{10 \text{ dol.}}{1 \text{ person}}$

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = \frac{100}{10}x + 200$

$C = \frac{10}{1}P + 200$



What does the y-intercept represent?

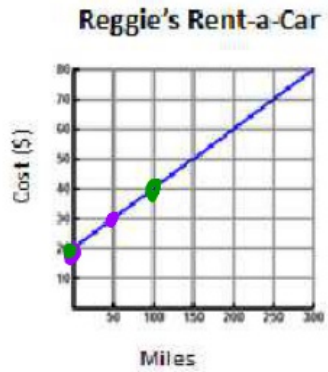
initial cost of $20

Beginning value - step 0 ***(b)*** ? 20

Rate of change ***(m)*** ? $\frac{10 \text{ dollars}}{50 \text{ miles}} = \frac{20 \text{ dollars}}{100 \text{ miles}}$

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = \frac{10}{50}x + 20$

$D = \frac{1}{5}M + 20$



What does the y-intercept represent?

Beginning pop. of penguins is 80

Beginning value - step 0 ***(b)*** ? 80

Rate of change ***(m)*** ? $\frac{-20 \text{ penguins}}{4 \text{ months}}$

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = -\frac{20}{4}x + 80$

What does the x-intercept represent?

The penguins have a pop. Ø @ 16 months