

1. Read the directions to answer the following questions about slope.

Given the following pairs of points, calculate the slope.

a. (2, 5) (-5, 5)

$$\frac{5-5}{-5-2} = \frac{0}{-7} = \boxed{0}$$

b. (5, 2) (-5, 2)

$$\frac{2-2}{-5-5} = \frac{0}{-10} = \boxed{0}$$

c. (-1, -3) (2, 6)

$$\frac{6-(-3)}{2-(-1)} = \frac{9}{3} = \boxed{3}$$

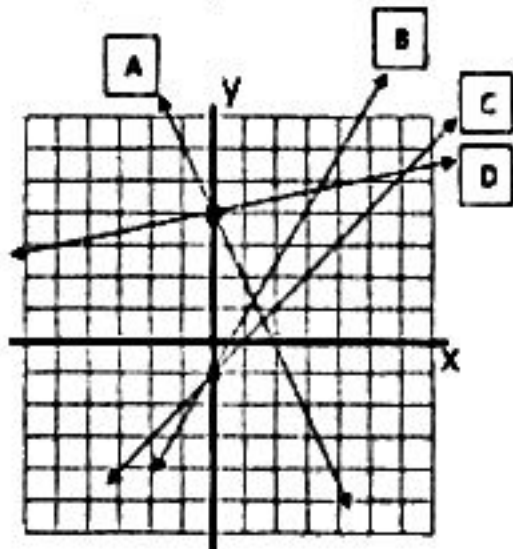
- d. Find r , given a slope of -3 and point (2, 6) and (4, r)

$$\frac{r-6}{4-2} = \frac{-3}{1} \Rightarrow \frac{r-6}{2} = \frac{-3}{1} \Rightarrow -6 = 1(r-6)$$

$$\begin{array}{r} -6 = r - 6 \\ +6 \quad +6 \end{array}$$

$$\boxed{0 = r}$$

2. Match the slope-intercept equation with the correct line on the graph.



A and D $\Rightarrow +4$

B and C $\Rightarrow -1$

$y = \frac{1}{4}x + 4$ D

$y = 2x - 1$ B

$y = x - 1$ C

$y = -2x + 4$ A

3. Ms. Emar's dog Lulu is walking in the backyard.

- a. During what time interval does Lulu walk back towards the house? \Rightarrow Going down $2 \leq x \leq 4$

At what rate is she walking during this time?

$$\frac{-10}{2} = -5 \text{ ft/sec}$$

- b. During what time interval does Lulu sit and stare at a squirrel? \Rightarrow Flat! $4 \leq x \leq 7$

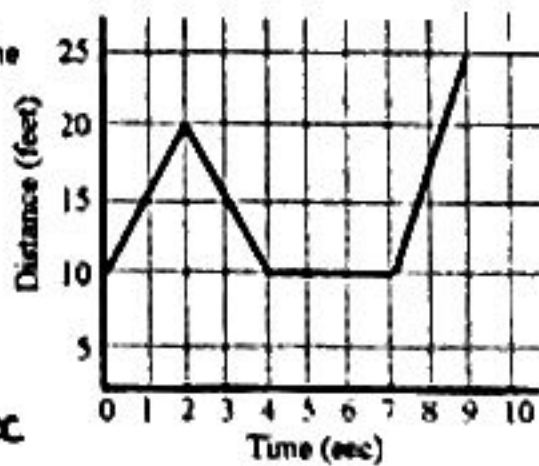
What is the rate of change during this time? 0 ft/sec

- c. Identify the domain and range

D: $0 \leq x \leq 9$ R: $10 \leq y \leq 25$

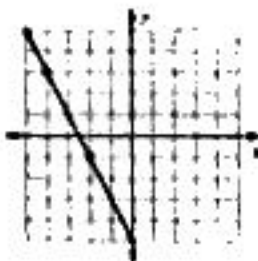
- c. When is Lulu walking the fastest?

\Rightarrow Steepest! $7 \leq x \leq 9$



4. Find the slope of the line

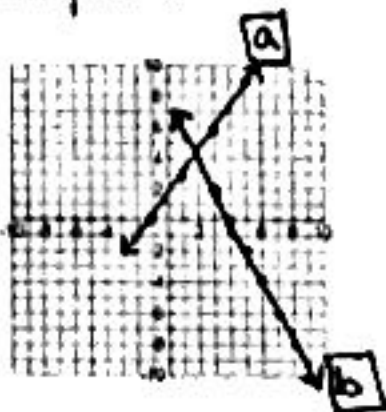
$$-\frac{4}{2} \text{ down} = -2 \text{ right}$$



5. Draw a line for each given point and slope

a. Slope = $\frac{3}{2}$ Point = $(-1, 0)$

b. Slope = -2 Point = $(3, 2)$



6. Jennifer already has some money saved up to buy a laptop. She needs more money to buy the one she wants so she has decided to save a set amount each week.

Complete the missing values in the chart and answer all questions.

Number of weeks (x)	Amount of money (y)
0	200
2	240
4	280
6	320
8	360

- a. Does this appear to be a linear function? Why or why not? Yes, X's and Y's follow a pattern!

- b. What is the y-intercept in this situation? 200

What does this value represent?

Initial amount of money

- c. What is the slope for this situation? $\frac{40}{2} = 20$

What does the slope represent?

Saves \$20 per week

- d. Write a NOW-NEXT and Formal Recursive rule that describes the pattern in the table. Include start number. Next = Now + 20 start = 200

$$a_n = a_{n-1} + 20 \quad a_0 = 200$$

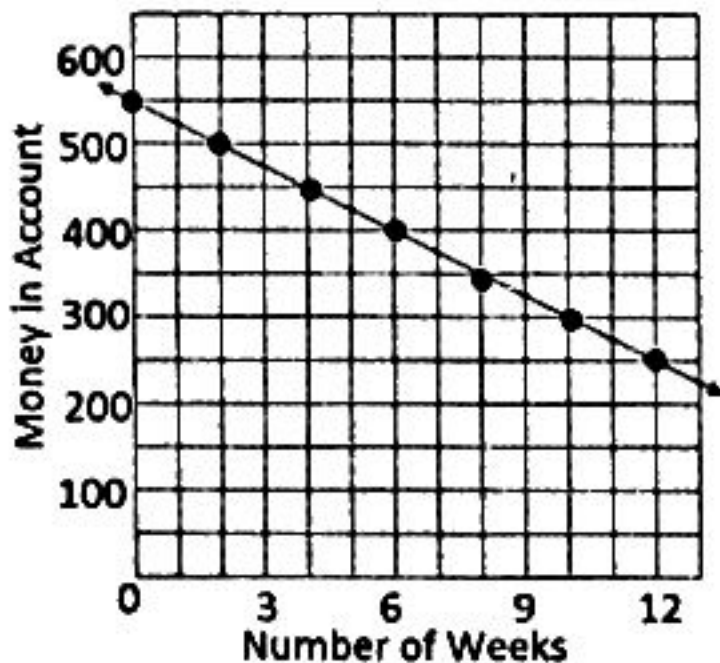
- e. Write an equation in slope-intercept form to represent the amount of money Jennifer has at x number of weeks $y = 20x + 200$

- f. The computer that Jennifer wants to buy costs \$520. How many weeks will it take her to save up enough money? $520 = 20x + 200$

$$\begin{array}{r} 520 = 20x + 200 \\ -200 \quad -200 \\ \hline 320 = 20x \\ \frac{320}{20} = \frac{20x}{20} \\ 16 = x \end{array}$$

16 weeks

7. Ryan has all of his money in his bank account. He will take out a certain amount of money each week for the next 15 weeks. Below is a graph to represent how much money (y) Brett has in his bank at (x) number of weeks.



- a. Does this appear to be a linear function? Yes
 Explain why or why not. It makes a straight line!
- b. What is the y-intercept in this situation? 550
 What does this value represent? \$550 in Ryan's bank account at the beginning.
- c. What is the slope for this situation? $-\frac{50}{2} = -25$
 What does the slope represent? Takes out \$25 per week.
- d. Write a NOW-NEXT and formal recursive rule that describes the pattern in the table. Include start number. Next = Now - 25 start = 550 $a_n = a_{n-1} - 25$ $a_0 = 550$
- e. Write an equation in slope-intercept form to represent the amount of money that Brett has in his account at any week. $y = -25x + 550$
- f. How much money does Brett have left in his account at the end of the 15 weeks? \$175

$$y = -25(15) + 550$$

$$y = 175$$

8. Suppose the windows in your house are filthy. You decide to hire a window washer to get your windows sparkling. One window washer in particular charges a fee of \$50 for materials plus \$20 for each additional window that he cleans.

- a. If you were to graph this situation, what would the y-intercept be? Let x be the number of windows and let y be the cost. $(0, 50)$
 b. What is the slope? $\$20$
 c. Write a NOW-NEXT and formal recursive rule for this situation including start number.

Next = NOW + 20 start = 50 $a_n = a_{n-1} + 20$ $a_0 = 50$

- d. Represent this situation using an equation in slope-intercept form.

$y = 20x + 50$

- e. The window washer has cleaned all of your windows and has just charged you \$330. How many windows were cleaned?

$330 = 20x + 50$
 -50 -50

14 windows.

$\frac{280}{20} = \frac{20x}{20}$

$14 = x$

9. Convert the following equations to slope-intercept form:

a. $9x - 3y = 18$
 $-9x$ $-9x$

$-3y = \frac{18}{-3} - \frac{9x}{-3}$

$y = -6 + 3x$

$y = 3x - 6$

$y = mx + b$

b. $2x + 7y = 8$
 $-2x$ $-2x$

$7y = \frac{8}{7} - \frac{2x}{7}$

$y = \frac{8}{7} - \frac{2}{7}x$

$y = -\frac{2}{7}x + \frac{8}{7}$

$y = mx + b$

c. $4x - 6y = -2$
 $-4x$ $-4x$

$-6y = \frac{-2}{-6} - \frac{4x}{-6}$

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

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

$y = mx + b$