

Warm-up

Move

begin

Identify the slope and y-intercept of the following equations.

$$1. y = -4x + 3$$

m      b

$$2. y = 5 - \frac{1}{2}x$$

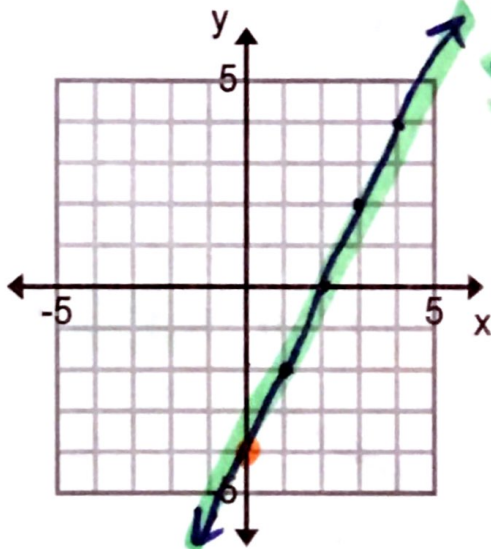
b      m

$$y = -\frac{1}{2}x + 5$$

Graph the equation.

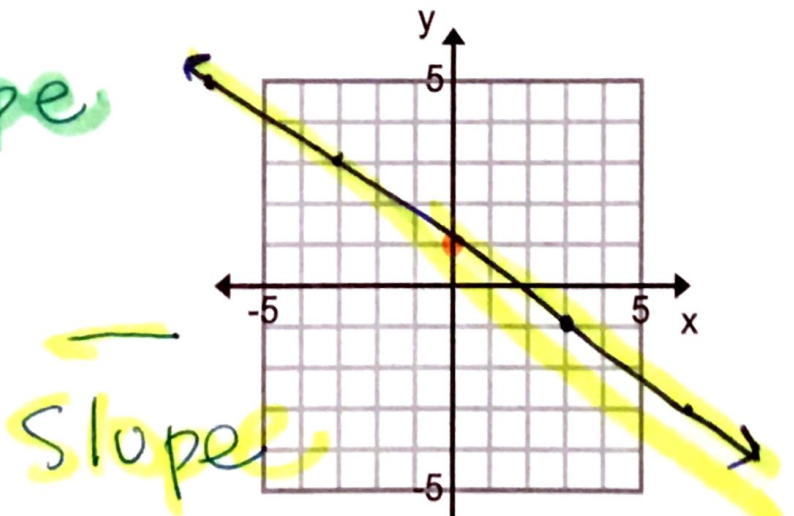
$$3. y = 2x - 4$$

m      b



$$4. y = -\frac{2}{3}x + 1$$

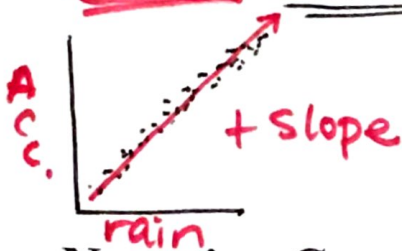
m      b



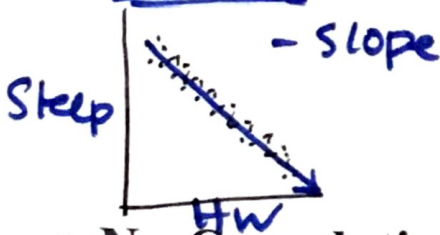
Vocabulary:

- **Scatter Plot** – a collection of points  $(x, y)$  on a graph that may or may not have a trend/pattern.

- **Positive Correlation** – as  $x$  increases, so does  $y$ .



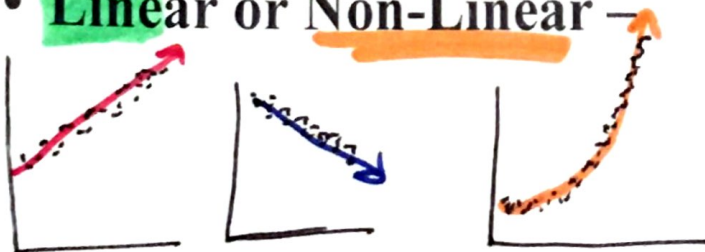
- **Negative Correlation** – as  $x$  increases  $y$  decreases.



- **No Correlation** – NO relationship between  $x$  &  $y$ .



- **Linear or Non-Linear**



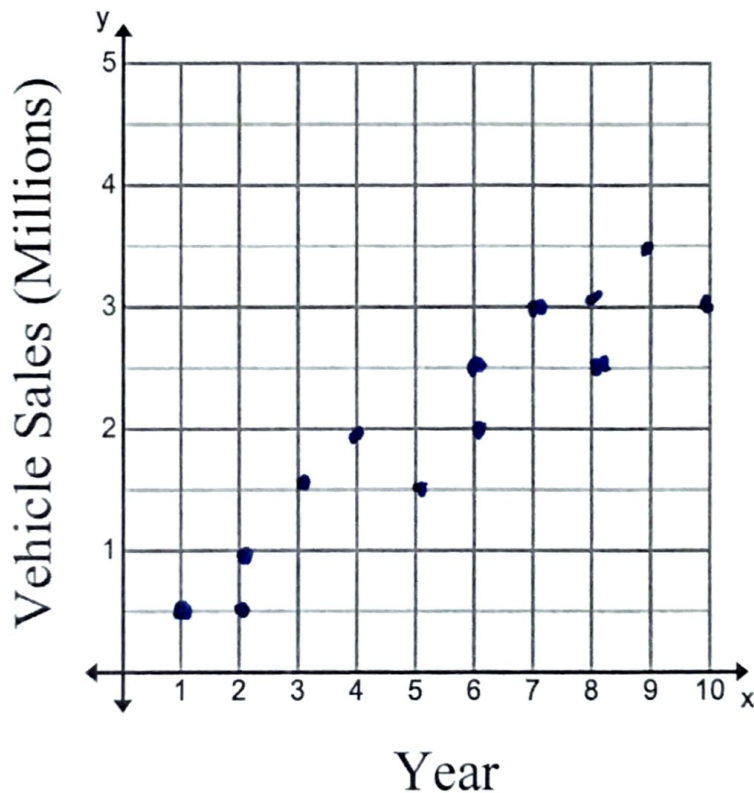
- **Line of Best Fit**–

The line that fits BEST through the pattern of the dots.

\* Middle! \*



**Ex. 1:** Data was collected regarding the purchase of SUV vehicles in comparison with compact cars. **Experts suggest that the purchase of SUV's is on the rise.**

Use the graph below to complete a scatter plot that supports the experts claim.



Explain whether a scatter plot for each pair of variables would probably show a positive, negative, or relatively no correlation between the variables.



\* Remember!  $time = x$

Ex. 2: The distance traveled  and the time driving 



Positive

Ex. 3: A person's height and their birth month



No correlation

Ex. 4: The amount of snow on the ground  and the daily temperature 



Negative

Ex. 5: The amount of time you exercise  and the amount of calories you burn 

Positive

Ex. 6: The time water boils  and the amount of water in the pot 

Negative

Ex. 7: The number of files  stored on a thumb drive and the amount of memory  left on the drive.

Negative

**Ex. 8:** The scatter plot shows the number of cellular service subscribers in the US. Write an equation in slope-intercept form for the line of best fit that is drawn, and interpret the slope and y-intercept.

$$y = mx + b$$

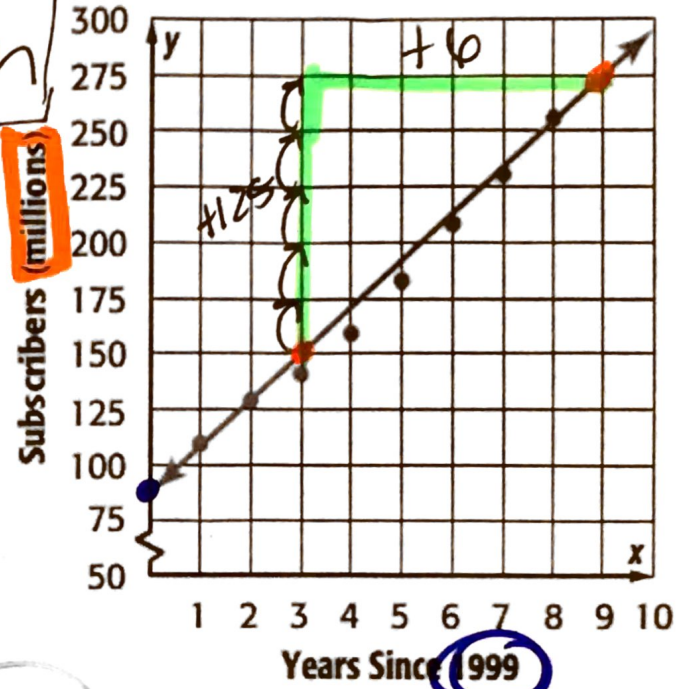
$$\frac{y_2 - y_1}{x_2 - x_1} = m$$

① Slope!  $\frac{125}{6} = 20.8\bar{3}$

20.8 $\bar{3}$  million subscribers per year

② y-intercept = about 85 million subscribers in 1999.

③ EQUATION!  $y = 20.8\bar{3}x + 85$



**Ex. 9:** Which equation is the best fit for the scatter plot?

~~A~~  $y = -\frac{9}{2}x + 77$

~~B~~  $y = 10x + 10$

~~C~~  $y = -8x + 70$

**D**  $y = -10x + 90$

