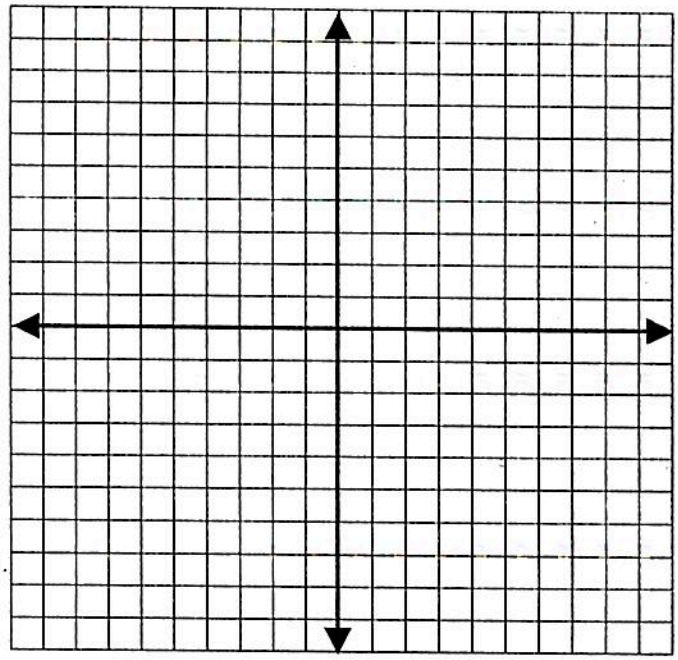
Algebra RH

Essential Question: How do we determine the slope of a linear function?

Do Now:

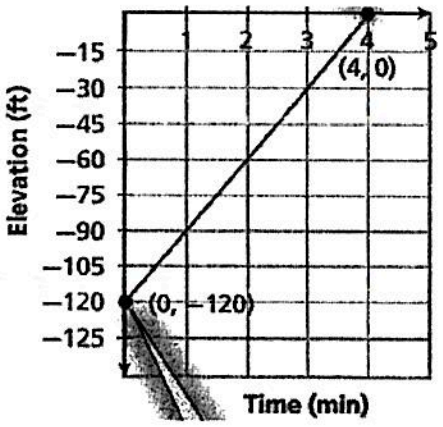
Graph $\frac{2}{3}y = 4 - \frac{1}{2}x$ using the intercept method.



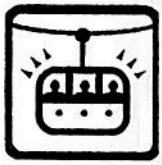
Identifying and Interpreting Intercepts

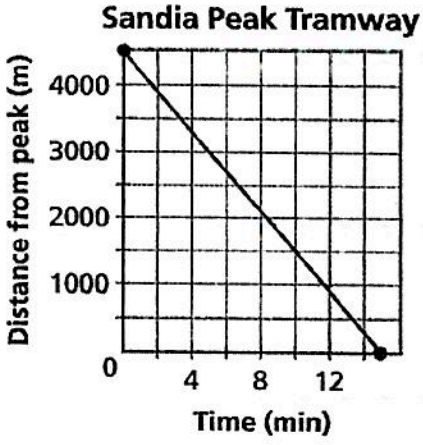
For each graph below, identify the x and y-intercepts. What does each intercept represent?

1. A diver explored the ocean floor 120 feet below the surface and then ascended at a rate of 30 feet per minute. The graph shows the diver's elevation below sea level during the ascent.



2. The Sandia Peak Tramway in Albuquerque, New Mexico travels a distance of about 4500 meters to the top of Sandia Peak. Its speed is 300 meters per minute. The graph shows the tram's distance from the summit to the base.



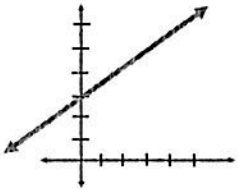


Essential Question: How do we determine the slope of a linear function?

Slope of a Line

Slope is a number (*ratio*) that describes the _____ of a line. It is the constant _____.

Types of Slope



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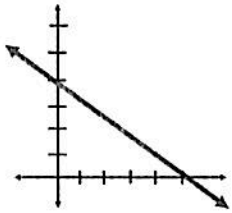

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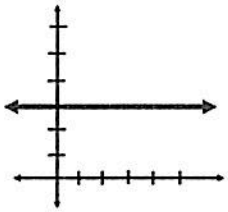

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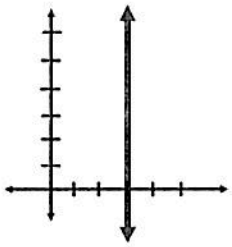

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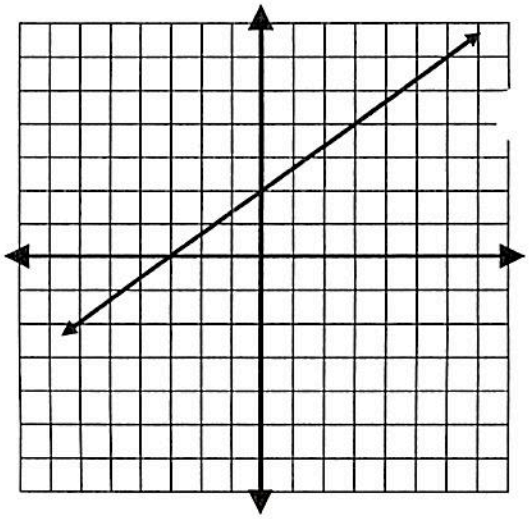
Finding Slope From a Graph

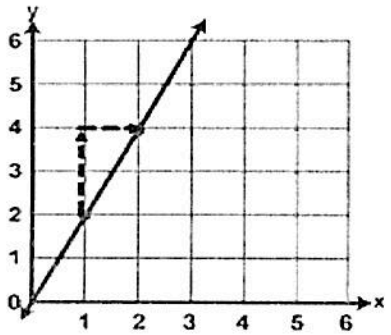
1) Locate any two points on the line

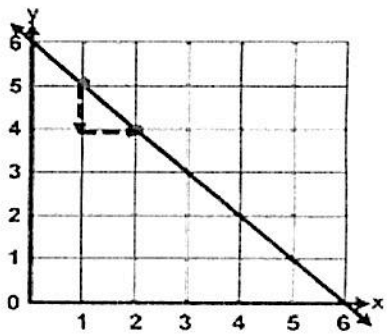
2) Determine the rise and run between the two points.

3) Create a ratio ($\frac{rise}{run}$) and simplify.



Find the slope of each line using $\frac{\text{rise}}{\text{run}}$





Finding the slope of a line using the Slope Formula

Slope Formula = $\frac{\Delta y}{\Delta x} = \frac{y_1 - y_2}{x_1 - x_2}$

(1) Find the slope of the line containing the points (1, 4) and (2, 5).

(2) Find the slope of the line containing the points (-5, 1) and (0, -6).

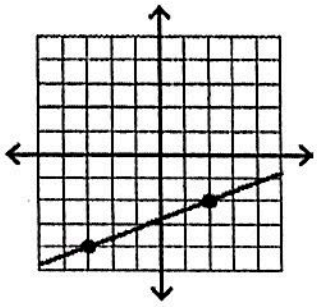
(3) Find the slope of the line containing the points (2, 5) and (6, 5).

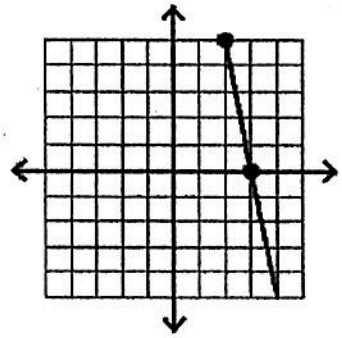
(4) Find the slope of the line containing the points (-2, 3) and (-2, 8).

(5) Find the value of y so that the line passing through the points (2, -15) and (5, y) has a slope of $\frac{4}{5}$.

(6) Find the value of x so that the line passing through the points (x, 15) and (10, 7) has a slope of $-\frac{1}{2}$.

Find the slope of each line.

1. 

2. 

Plot the points and draw a line through them. Calculate the slope using rise to run.

3. (2,4) (5,2)
4. (2, -5) (2,4)
5. (4,1) (6,7)
6. (-4,2) (0,5)

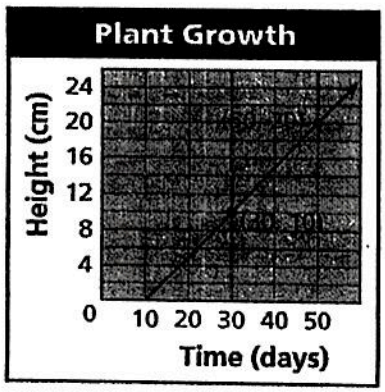
Using the slope formula, find the slope of a line passing through the following points.

7. (1,5) (2,9)
8. (2,4) (1,1)
9. (4,1) (2,7)
10. (0,4) (-2,8)
11. (-3,-9) (-3,-1)
12. (3, -1) (-6,-1)
13. (2,4) (-1,-1)
14. (7,2) (-8,-3)

Find the value of y so that the line passing through the two points has the given slope.

15. $(1, y)$ (2,4) m = 1
16. $(4, y)$ (5,3) m = 3
17. (1, 5), $(10, y)$ m = -4
18. $(-6, y)$ (0, 2) $m = -\frac{1}{3}$
19. (3,5) $(1, y)$ $m = \frac{3}{2}$

20. Determine the x-intercept of the graph. What does the x-intercept represent?



21. Determine the y-intercept of the graph. What does the y-intercept represent?