

Solve for x:

$$7 + 3(2 - 4x) = 4(7 - x) + 1$$

Distribute

$$7 + 6 - 12x = 28 - 4x + 1$$

CLT

$$13 - 12x = 29 - 4x$$

$$\begin{array}{r} +4x \quad +4x \\ \hline \end{array}$$

$$13 - 8x = 29$$

$$\begin{array}{r} -13 \quad -13 \\ \hline \end{array}$$

$$-8x = 16$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$x = -2$$

OR

$$7 + 3(2 - 4x) = 4(7 - x) + 1$$

$$7 + 6 - 12x = 28 - 4x + 1$$

$$13 - 12x = 29 - 4x$$

$$\begin{array}{r} +12x \quad +12x \\ \hline \end{array}$$

$$13 = 29 + 8x$$

$$\begin{array}{r} -29 \quad -29 \\ \hline \end{array}$$

$$\begin{array}{r} -16 = 8x \\ 8 \quad 8 \\ \hline \end{array}$$

$$-2 = x$$

It doesn't matter what steps you take as long as you do the same thing to both sides!

Homework Questions?

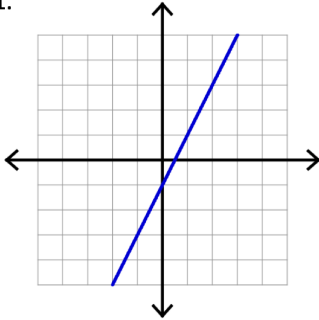
Name _____ Block _____ Date _____
Make sure you have checked the answer key!

Calculating Slope From a Graph or 2 Coordinate Pairs

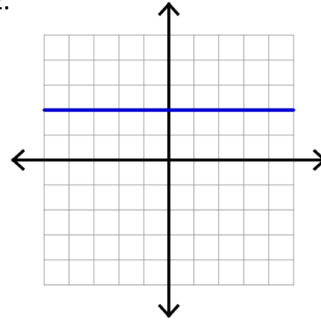
Find slope using a graph. (Make sure to select points with whole number coordinates.)

Remember: Slope = $\frac{\Delta y}{\Delta x}$ This should be written for every problem where you have to calculate slope.

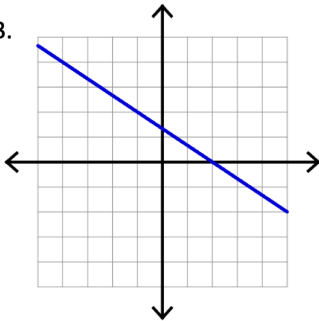
1.



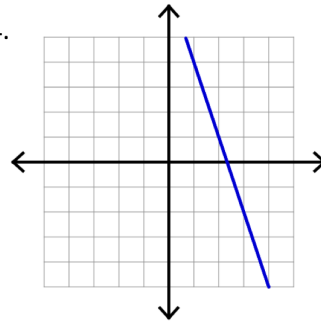
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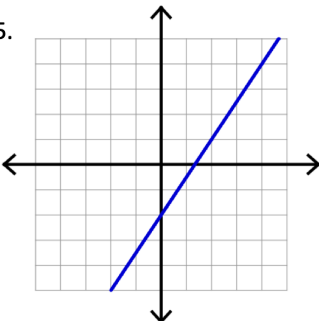
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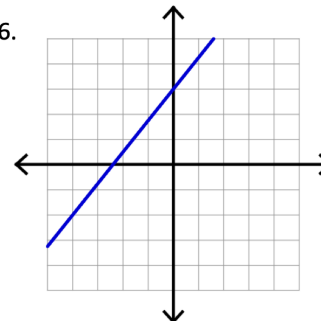
4.



5.



6.



Find the slope between two points. Show your thinking!

Remember: Slope = $\frac{\Delta y}{\Delta x}$ This should be written for every problem where you have to calculate slope.

7. (1, -19), (-2, -7)

8. (-4, 7), (-6, -4)

9. (20, 8), (9, 16)

10. (3, 0), (-11, -15)

Match-A-Slope

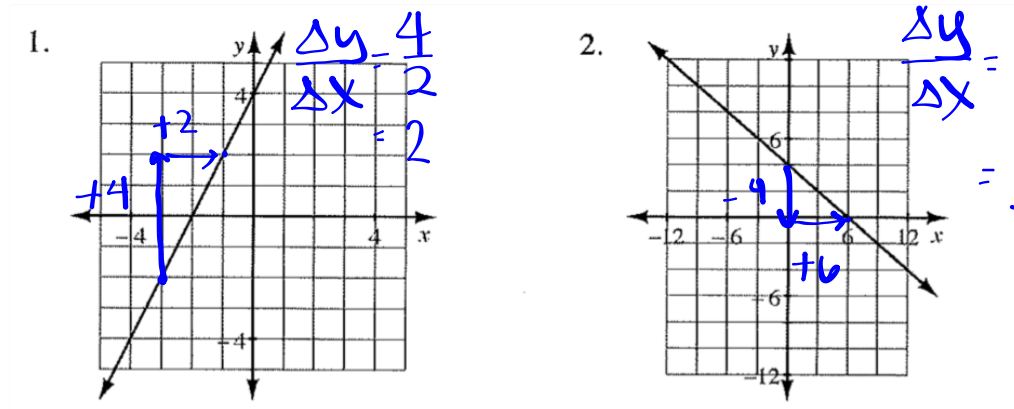
Match the following graphs with their slopes. **Pay special attention to the scaling on each set of axes.** Show your calculations to find each slope.

a. $\text{slope} = \frac{1}{4}$

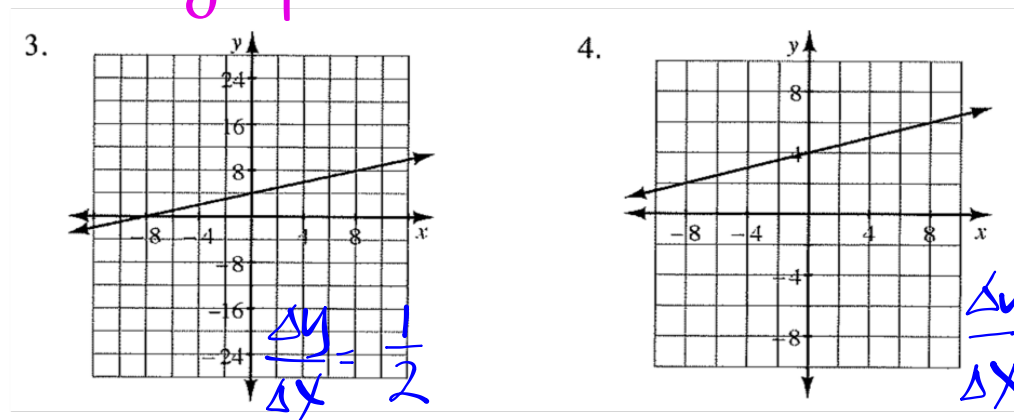
b. $\text{slope} = \frac{1}{2}$

c. $\text{slope} = 2$

d. $\text{slope} = -\frac{2}{3}$



Tricky because the intervals on the axes are not always equal to 1.



The intervals on the x-axis don't have to be the same as the intervals on the y-axis!!

Quiz Topics

SWBAT:

- Describe patterns of change in tables and graphs using proper mathematical language.

Increase/decrease

Linear

constant rate of change / constant
changes slope

$$\frac{\Delta y}{\Delta x}$$

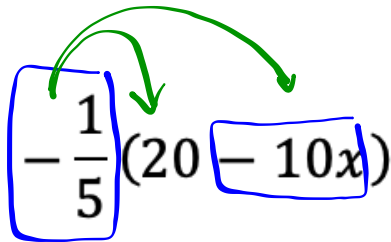
- Determine when data points should be connected on a graph.

Discrete vs. Continuous Data



- Solve for "x" **algebraically**, using proper format.
- Calculate slope given a graph or two points.

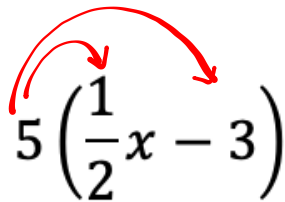
Distributing With Fractions



A diagram illustrating the distribution of the fraction $-\frac{1}{5}$ to the terms inside the parentheses. The fraction $-\frac{1}{5}$ is enclosed in a blue box. The expression $(20 - 10x)$ is also enclosed in a blue box. Two green curved arrows originate from the fraction box: one points to the constant term 20, and the other points to the term $-10x$.

$$-\frac{1}{5}(20 - 10x)$$

$$-4 + 2x$$



A diagram illustrating the distribution of the number 5 to the terms inside the parentheses. The number 5 is enclosed in a red box. The expression $(\frac{1}{2}x - 3)$ is also enclosed in a red box. Two red curved arrows originate from the number box: one points to the term $\frac{1}{2}x$, and the other points to the constant term -3.

$$5\left(\frac{1}{2}x - 3\right)$$

$$\frac{5}{2}x - 15$$

Solving With Fractions

$$4 \left[\frac{1}{4}x = 2 \right]$$

$$x = 8$$

$$\frac{3}{1} \left[\frac{2}{3}x = 5 \right]$$

$$2x = 15$$

$$\frac{2}{2} \quad \frac{15}{2}$$

$$x = \frac{15}{2}$$

$$\frac{x}{3} + 2 = 7$$

$$\begin{array}{cc} -2 & -2 \end{array}$$

$$3 \left[\frac{x}{3} = 5 \right]$$

$$x = 15$$

$$3 \left[\frac{x}{3} + 2 = 7 \right]$$

$$\begin{array}{cc} x+6=21 \\ -6 & -6 \end{array}$$

$$x = 15$$

$$3 \left[2x - \frac{1}{3} = 4 \right] 3$$

$$6x - 1 = 12$$

$$\begin{array}{cc} +1 & +1 \end{array}$$

$$\frac{6x}{6} = \frac{13}{6}$$

$$x = \frac{13}{6}$$

$$5 \left[\frac{4}{5}x + 3 = -\frac{1}{5} \right] 5$$

$$4x + 15 = -1$$

$$\begin{array}{cc} -15 & -15 \end{array}$$

$$\frac{4x}{4} = \frac{-16}{4}$$

$$x = -4$$

Solving for x with Fractions

$$\textcircled{1} \quad \frac{2}{3}x - 15 = 65$$

$$\textcircled{2} \quad 2x = \frac{49}{5}$$

$$\textcircled{3} \quad \frac{9}{10}x = -\frac{11}{10}$$

$$\textcircled{4} \quad \frac{12}{5} = \frac{1}{3} + x$$

Different denominators,
see below.

$$\begin{aligned} \frac{10}{1} \left[\frac{9}{10}x = -\frac{11}{10} \right] \\ 9x = -11 \\ \frac{9x}{9} = \frac{-11}{9} \\ x = -\frac{11}{9} \end{aligned}$$

$$\textcircled{5} \quad x - \frac{4}{7} = 14$$

$$\textcircled{6} \quad x - \frac{x-1}{2} = 0$$

$$\textcircled{7} \quad \frac{1}{3} = x + \frac{4}{3}$$

$$\textcircled{8} \quad \frac{1}{2} + \frac{x}{3} = \frac{x}{2}$$

$$\textcircled{9} \quad x - \frac{3}{9} = 15$$

$$\textcircled{10} \quad \frac{2x-1}{3} + 3 = x$$

$$\#4 \quad 3 \left[\frac{12}{5} = \frac{1}{3} + x \right]$$

$$\frac{5}{1} \left[\frac{36}{5} = 1 + 3x \right]$$

$$\begin{aligned} 36 &= 5 + 15x \\ -5 \quad -5 \\ \hline 31 &= 15x \\ \frac{31}{15} &= \frac{15x}{15} \\ \frac{31}{15} &= x \end{aligned}$$

Could we have multiplied
both sides by a single
number instead of having
to multiply twice by
different numbers?

$$\frac{12}{5} = \frac{1}{3} + x$$

$$\begin{aligned} \frac{36}{15} &= \frac{5}{15} + x \\ -\frac{5}{15} \quad -\frac{5}{15} \\ \hline \frac{31}{15} &= x \end{aligned}$$

Finding a
common
denominator
can help!

Homework

Finish classwork