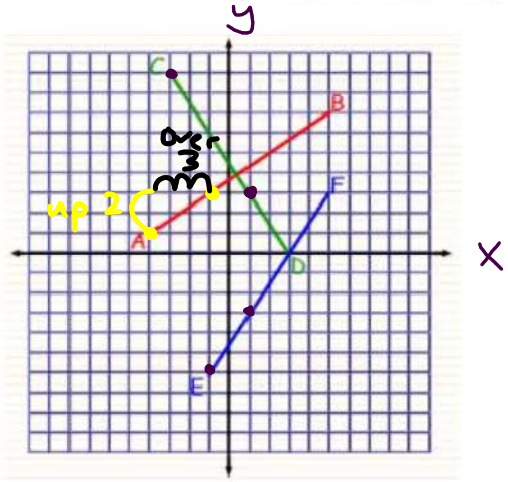
Geometry CC – Mr. Valentino
~~Unit 9~~ Lesson 1: Slope!
Unit 10

Name: _____
Date: _____ Per: _____

Aim: How can we find slope?

Do Now: Find the slope of each line segment



★ rise / run

AB: $\frac{2}{3}$

CD: $\frac{-3}{2} = \frac{6}{-4}$

EF: ↳ $\frac{3}{2}$

How can we find the slope between two points not on the coordinate plane?

A(-4, 1) and B(5, 7)

$\frac{\Delta y}{\Delta x} = \frac{7-1}{5+4} = \frac{6}{9} = \frac{2}{3}$ ← change in

★ $y = mx + b$ (m = slope)

★ point slope form

$y - y_1 = m(x - x_1)$

(y_1: y coordinate; m: slope; x_1: x-coordinate)

If two lines are parallel, then they have the same slopes.

ex:

$y = \frac{2}{3}x + 17$

$y = \frac{2}{3}x - 100$

If two lines are perpendicular then they have negative reciprocal slopes.

ex:

$y = \frac{3}{5}x + 2$

$y = -\frac{5}{3}x - 8$

1. Which equation represents a line parallel to the graph of $2x - 4y = 16$?

$y = mx + b$

1) $y = \frac{1}{2}x - 5$ 2) $y = -\frac{1}{2}x + 4$ 3) $y = -2x + 6$ 4) $y = 2x + 8$

$2x - 4y = 16$ $-2x$ $-2x$

$\frac{-4y}{-4} = \frac{-2x + 16}{-4}$ $y = \frac{1}{2}x - 4$

2. What is the slope of a line perpendicular to the line who equation is $3x + 4y = 12$?

1) $\frac{3}{4}$ 2) $-\frac{3}{4}$ 3) $\frac{4}{3}$ 4) $-\frac{4}{3}$

3. Which equation represents the line that passes through the point $(-2, 2)$ (x_1, y_1) and is parallel to $y = \frac{1}{2}x + 8$?

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

$y - y_1 = m(x - x_1)$

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

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

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

HW: #2 we did not do and #1,8,9

Partner Practice

1. Find the slope of the line connecting the points (3, -2) and (4, 5).

2. What is the slope of the line that passes through the points (2, -7) and (-1, 4)?

3. Two points whose coordinates are (5, -8) and (3, a) determine a line whose slope is 4.
Find the value of a.

4. Which set of points determine a line with a slope of 1/5?

A. (2, 3), (7, 4)

B. (3, -2), (8, -3)

C. (7, 1), (8, 6)

D. (4, 5), (3, 6)

5. What is the slope of the line that passes through the points (0, 8) and (3, 0)?

6. What value of y would make AB||CD if A(2, 6), B(8,-2), C(-2, 4) D(10, y)?

7. What is the equation of a line passing through (2, −1) and parallel to the line represented by the equation y = 2x + 1?

8. What is the equation of the line that is parallel to the line whose equation is 4x + 3y = 7 and also passes through the point (−5, 2)?

9. What is an equation of the line that contains the point (3, –1) and is perpendicular to the line whose equation is y = –3x + 2?