

Lesson 11.2: SWBAT use the slope formula in order to compare slopes.
Kick off- Simplify

1) $\frac{-6x^2y^3}{3x^2y^3} = -3$ 2) $-7x^0 \cdot 4x^{-2} = \frac{-28}{x^2}$

3) Complete the square: $x^2 - 8x - 20 = 0$

$x^2 - 8x = 20$
 $(x-4)^2 = 20 + 16$
 $\sqrt{(x-4)^2} = \sqrt{36}$
 $x-4 = \pm 6$

$x-4 = +6$ $x-4 = -6$
 $+4 +4$ $+4 +4$
 $x = 10$ $x = -2$

$5y + 15 = 3x - 15$
 $5y = 3x - 30$
 $\frac{5y}{5} = \frac{3x - 30}{5}$
 $\frac{5y}{5} = \frac{3x - 10}{5}$

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

Examples: Determine the slope of each of the following.

1) $(-4, 1)$ and $(2, -3)$
 x_1, y_1 x_2, y_2
 $\frac{(-3) - (1)}{(2) - (-4)} = \frac{-4}{6} = \frac{-2}{3}$

2) $(2, 5)$ and $(2, -7)$
 $\frac{(-7) - (5)}{(2) - (2)} = \frac{-12}{0}$
 Undefined

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Parallel Lines have the Same slope. While perpendicular lines have negative reciprocal slopes. If the slopes are not parallel or perpendicular they are neither.

↓
 flip + change signs!

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Determine if the slopes are parallel, perpendicular or neither.

1) Line 1: $(-2, 1)$ & $(0, 4)$
 Line 2: $(5, 3)$ & $(-1, 2)$

Line 1: $\frac{(4) - (1)}{(0) - (-2)} = \frac{3}{2}$

Line 2: $\frac{(2) - (3)}{(-1) - (5)} = \frac{-1}{-6} = \frac{1}{6}$

Neither!

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3) Line 1: $(5, -8)$ & $(13, -15)$
 Line 2: $(-7, 4)$ & $(1, -3)$

4) Line 1: $(0, -4)$ & $(-5, 1)$
 Line 2: $(0, 3)$ & $(-1, 2)$

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5) Line 1: $(-3, 2)$ & $(0, -4)$
 Line 2: $(-1, 6)$ & $(2, 0)$

6) Line 1: $(-3, 2)$ & $(1, 5)$
 Line 2: $(-2, 0)$ & $(1, 4)$

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