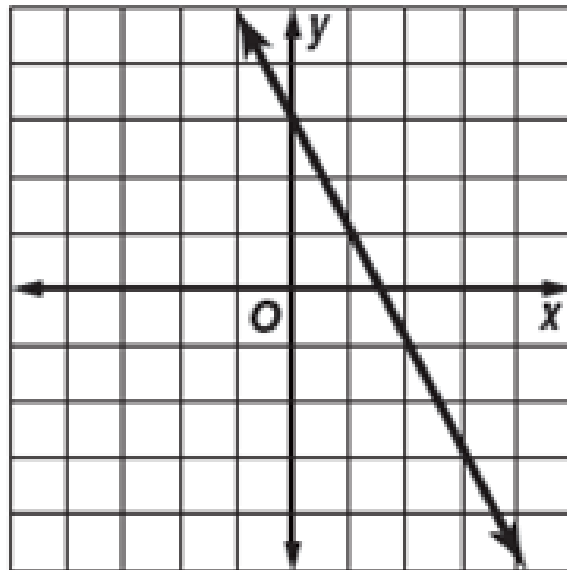# Warm up...

1. What is the value of the expression when x = 4 and y = −3?

$$6xy^2 + 2x^2$$

$$6(4)(-3)^2 + 2(-3)^2$$

$$6 \cdot 4 \cdot 9 \qquad + 18$$

$$\boxed{234}$$

2) Which equation represents the line that is graphed below?

A $y = -3x + 2$

B $y = -2x + 3$

C $y = 2x + 3$

D $y = 3x + 2$

Warm Up!!!

Grab a sand dunes worksheet on answer key desk

Point-Slope Form

HE'D BE NOTHING WITHOUT HER.

Goals aligned with Common Core Standards

- You will be able to create a linear equation to represent relationships quantities.

POINT-SLOPE Form

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

In your groups determine:

1. What does the m represents? *slope*

2. What does the (x_1, y_1) represent? *coordinate*

3. What does the (x, y) represent? *input, output (domain, range)*

4. Why do you think the name of the formula is called point-slope form? *plug into slope, point*

5. You are given only a point $(3,8)$ and a slope 2 and you need to write an equation in slope intercept form. Use the point-slope form to rewrite the equation in slope-intercept form.

Practice.... with given slope and point

$(-6, 3), m = -\frac{2}{3}$

$(1, 4)$; Slope: 3

$$y - 3 = -\frac{2}{3}(x + 6)$$

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

$$+3 \qquad\qquad +3$$

$$\boxed{y = -\frac{2}{3}x - 1}$$

Can point-slope form be used to write an equation in slope-intercept form given two points ?

$(1, 1); (3, 2)$

$m = \dfrac{2-1}{3-1} = \dfrac{1}{2}$

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

$y - 1 = \dfrac{1}{2}x - \dfrac{1}{2}$

$\underline{+1 \qquad\qquad +1}$

$y = \dfrac{1}{2}x + \dfrac{1}{2}$

Practice....

$(5, 3); (1, 4)$

$$m = \frac{4-3}{1-5} = \frac{1}{-4}$$

$$y - 4 = -\frac{1}{4}(x-1)$$

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

$$y = -\frac{1}{4}x + \frac{17}{4}$$

$(-3, 4); (6, -2)$

$(-3, 2)$ and $(-3, -5)$ undef.

$$m = \frac{-5-2}{-3+3} = \frac{-7}{0} = \text{undef.}$$

$$x = -3$$

Extra Practice.... with two points

(3, 4) and (5, 4) $(-4, 7); (-1, -2)$

$m = \dfrac{4-4}{5-3} = \dfrac{0}{2} = 0$

$y - 4 = 0(x-3)$

$y - 4 = 0$
$\underline{+4 \quad +4}$
$\boxed{y = 4}$

Goals aligned with Common Core Standards

- You can create a linear equation to represent relationships quantities.

More Sand Dunes Task!

Book pg. 227#11-21odd, 24, 25