math Antics
Exercises

Name: _____

Date: _____

Slope And Distance

1 Find Δx and Δy for this pair of coordinates.

$$P1(0,5) \quad P2(4,-3)$$

$\Delta x = x_2 - x_1$ $\Delta y = y_2 - y_1$

$= 4 - 0$ $= -3 - 5$

$\boxed{\Delta x = 4}$ $\boxed{\Delta y = -8}$

2 Find Δx and Δy for this pair of coordinates.

$$P1(-2,-4) \quad P2(3,-1)$$

$\Delta x = x_2 - x_1$ $\Delta y = y_2 - y_1$

$= 3 - {-2}$ $= -1 - {-4}$

$\boxed{\Delta x = 5}$ $\boxed{\Delta y = 3}$

3 Given two points, if $\Delta x = 6$ and $\Delta y = 12$, what is the slope of the line they form?

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{12}{6} \boxed{= 2}$$

4 Given two points, if $\Delta x = 3$ and $\Delta y = -1$, what is the slope of the line they form?

$$\text{slope} = \frac{\Delta y}{\Delta x} = \boxed{\frac{-1}{3}} \text{ or } -0.\overline{3}$$
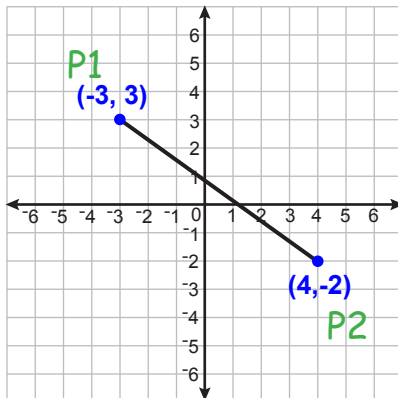
5 Given two points, if $\Delta x = 5$ and $\Delta y = -4$, what is the distance between them?

$$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(5)^2 + (-4)^2}$$

$$= \sqrt{25 + 16}$$

$$= \boxed{\sqrt{41}} \text{ or } 6.403$$

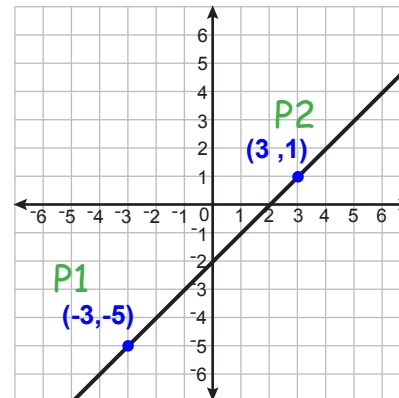**6** Given two points, if $\Delta x = -1$ and $\Delta y = -7$, what is the distance between them?

$$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(-1)^2 + (-7)^2}$$

$$= \sqrt{1 + 49}$$

$$= \boxed{\sqrt{50}} \quad \text{or } 5\sqrt{2} \text{ or } 7.071$$

7 Find the slope of this line segment, and the distance between its two end points.

$\Delta x = 4 - {-3}$

$\Delta x = 7$

$\text{slope} = \boxed{\frac{-5}{7}} \text{ or } 0.714$

$d = \sqrt{(7)^2 + (-5)^2}$

$= \sqrt{49 + 25}$

$\Delta y = -2 - 3$

$\Delta y = -5$

$= \boxed{\sqrt{74}} \text{ or } 8.602$

8 Find the slope of this line, and the distance between the two points shown.

$\Delta x = 3 - {-3}$

$\Delta x = 6$

$\text{slope} = \frac{6}{6} \boxed{= 1}$

$d = \sqrt{(6)^2 + (6)^2}$

$= \sqrt{36 + 36}$

$\Delta y = 1 - {-5}$

$\Delta y = 6$

$= \boxed{\sqrt{72}} \quad \text{or } 6\sqrt{2} \text{ or } 8.485$

See Video for step-by-step solutions to each problem.