math Antics Worksheets

Name:

Date:

Calculating Δx and Δy

SAD 1

Instructions: Calculate Δx and Δy for each pair of coordinates below.

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

1 P1 (6 , -2) P2 (-3 , 5)

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

$= -3 - 6$ $= 5 - -2$

$\Delta x = -9$ $\Delta y = 7$

2 P1 (-1 , -3) P2 (-7 , 0)

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

$= -7 - -1$ $= 0 - -3$

$\Delta x = -6$ $\Delta y = 3$

3 P1 (8 , -2) P2 (0 , 2)

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

$= 0 - 8$ $= 2 - -2$

$\Delta x = -8$ $\Delta y = 4$

4 P1 (1 , -10) P2 (4 , 4)

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

$= 4 - 1$ $= 4 - -10$

$\Delta x = 3$ $\Delta y = 14$

5 P1 (0 , 2) P2 (-1 , 10)

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

$= -1 - 0$ $= 10 - 2$

$\Delta x = -1$ $\Delta y = 8$

6 P1 (6 , -4) P2 (7 , 3)

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

$= 7 - 6$ $= 3 - -4$

$\Delta x = 1$ $\Delta y = 7$

7 P1 (7 , 7) P2 (5 , 3)

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

$= 5 - 7$ $= 3 - 7$

$\Delta x = -2$ $\Delta y = -4$

8 P1 (-8 , -5) P2 (-1 , -2)

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

$= -1 - -8$ $= -2 - -5$

$\Delta x = 7$ $\Delta y = 3$

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Using Slope & Distance Equations

SAD 2

Instructions: Use the 'deltas' given below to calculate the slope of the line they form.

Equation: $\text{slope} = \frac{\Delta y}{\Delta x}$

1 $\Delta x = 5\ ,\ \Delta y = 3$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{3}{5}$ or 0.6

2 $\Delta x = -2\ ,\ \Delta y = 2$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{2}{-2} = -1$

3 $\Delta x = 5\ ,\ \Delta y = -1$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-1}{5}$ or -0.2

4 $\Delta x = -12\ ,\ \Delta y = -4$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-4}{-12} = \frac{1}{3}$ or $0.\overline{3}$

5 $\Delta x = 8\ ,\ \Delta y = 10$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{10}{8}$ or $1\frac{1}{4}$ or 1.25

6 $\Delta x = 3\ ,\ \Delta y = -9$

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{-9}{3} = -3$

Instructions: Use the 'deltas' given to calculate the distance between the points that define them.

Equation: $d = \sqrt{(\Delta x)^2 + (\Delta y)^2}$

1 $\Delta x = 3\ ,\ \Delta y = -4$

$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(3)^2 + (-4)^2} = \sqrt{9 + 16} = \sqrt{25} = 5$

2 $\Delta x = -6\ ,\ \Delta y = 1$

$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(-6)^2 + (1)^2} = \sqrt{36 + 1} = \sqrt{37}$ or 6.083

3 $\Delta x = 8\ ,\ \Delta y = -3$

$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(8)^2 + (-3)^2} = \sqrt{64 + 9} = \sqrt{73}$ or 8.544

4 $\Delta x = -4\ ,\ \Delta y = 2$

$d = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{(-4)^2 + (2)^2} = \sqrt{16 + 4} = \sqrt{20}$ or $2\sqrt{5}$ or 4.472

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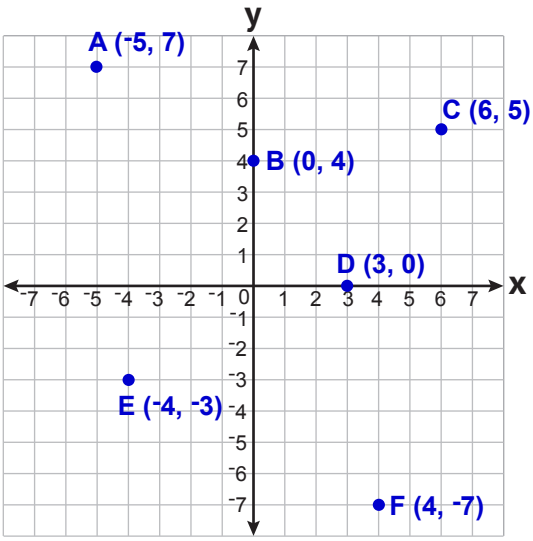
Calculating Slope & Distance - Set 1

SAD 3

Instructions: Refer to the graph below when answering the following questions.



1 Find the distance between points E and C, and the slope of the line they form.

$\Delta x = 6 - {}^{-}4 = 10$ $\quad \Delta y = 5 - {}^{-}3 = 8$

$d = \sqrt{(10)^2 + (8)^2} = \sqrt{100 + 64}$

$d = \sqrt{164}$ or $2\sqrt{41}$ or 12.806

slope $= \frac{8}{10} = \frac{4}{5}$ or 0.8

2 Find the distance between points B and D, and the slope of the line they form.

$\Delta x = 3 - 0 = 3$ $\quad \Delta y = 0 - 4 = {}^{-}4$

$d = \sqrt{(3)^2 + ({}^{-}4)^2} = \sqrt{9 + 16}$

$d = \sqrt{25} = 5$

slope $= \frac{{}^{-}4}{3} = {}^{-}1\frac{1}{3}$ or ${}^{-}1.\overline{3}$

3 Find the distance between points D and F, and the slope of the line they form.

$\Delta x = 4 - 3 = 1$ $\quad \Delta y = {}^{-}7 - 0 = {}^{-}7$

$d = \sqrt{(1)^2 + ({}^{-}7)^2} = \sqrt{1 + 49}$

$d = \sqrt{50}$ or $5\sqrt{2}$ or 7.071

slope $= \frac{{}^{-}7}{1} = {}^{-}7$

4 Find the distance between points A and B, and the slope of the line they form.

$\Delta x = 0 - {}^{-}5 = 5$ $\quad \Delta y = 4 - 7 = {}^{-}3$

$d = \sqrt{(5)^2 + ({}^{-}3)^2} = \sqrt{25 + 9}$

$d = \sqrt{34}$ or 5.831

slope $= \frac{{}^{-}3}{5}$ or ${}^{-}0.6$

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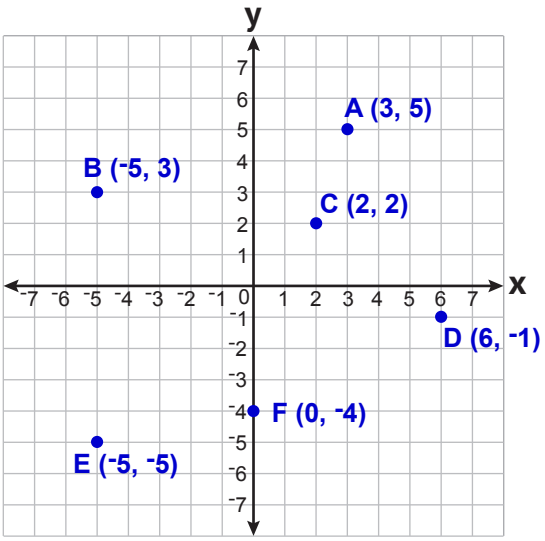
Calculating Slope & Distance - Set 2

SAD 4

Instructions: Refer to the graph below when answering the following questions.



1 Find the distance between points B and A, and the slope of the line they form.

$\Delta x = 3 - {}^{-}5 = 8$ $\quad \Delta y = 5 - 3 = 2$

$d = \sqrt{(8)^2 + (2)^2} = \sqrt{64 + 4}$

$d = \sqrt{68}$ or $2\sqrt{17}$ or 8.246

slope $= \frac{2}{8} = \frac{1}{4}$ or 0.25

2 Find the distance between points B and F, and the slope of the line they form.

$\Delta x = 0 - {}^{-}5 = 5$ $\quad \Delta y = {}^{-}4 - 3 = {}^{-}7$

$d = \sqrt{(5)^2 + ({}^{-}7)^2} = \sqrt{25 + 49}$

$d = \sqrt{74}$ or 8.602

slope $= \frac{{}^{-}7}{5} = -1\frac{2}{5}$ or -1.4

3 Find the distance between points E and C, and the slope of the line they form.

$\Delta x = 2 - {}^{-}5 = 7$ $\quad \Delta y = 2 - {}^{-}5 = 7$

$d = \sqrt{(7)^2 + (7)^2} = \sqrt{49 + 49}$

$d = \sqrt{98}$ or $7\sqrt{2}$ or 9.899

slope $= \frac{7}{7} = 1$

4 Find the distance between points E and D, and the slope of the line they form.

$\Delta x = 6 - {}^{-}5 = 11$ $\quad \Delta y = {}^{-}1 - {}^{-}5 = 4$

$d = \sqrt{(11)^2 + (4)^2} = \sqrt{121 + 16}$

$d = \sqrt{137}$ or 11.705

slope $= \frac{4}{11}$ or $0.\overline{36}$