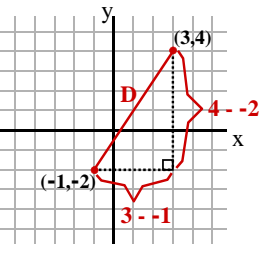


# Lesson 9-6b

Objective - To use the distance formula to find the distance between two coordinate points.



$$a^2 + b^2 = c^2$$

$$(4 - -2)^2 + (3 - -1)^2 = D^2$$

$$(6)^2 + (4)^2 = D^2$$

$$36 + 16 = D^2$$

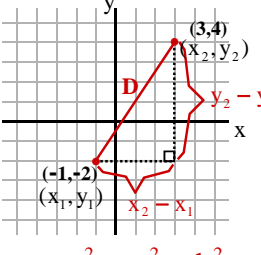
$$52 = D^2$$

$$\sqrt{52} = \sqrt{D^2}$$

$$D = \sqrt{52}$$

$$D \approx 7.2$$

Distance Formula



$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$D = \sqrt{(3 - -1)^2 + (4 - -2)^2}$$

$$D = \sqrt{(4)^2 + (6)^2}$$

$$D = \sqrt{16 + 36}$$

$$D = \sqrt{52}$$

$$c^2 = a^2 + b^2$$

$$D^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$D \approx 7.2$$

Find the distance between the coordinate points below to the nearest tenth.

1) (-4, 5) (6, -2)      2) (8, 0) (-9, 3)

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$D = \sqrt{(6 - -4)^2 + (-2 - 5)^2}$$

$$D = \sqrt{(10)^2 + (-7)^2}$$

$$D = \sqrt{100 + 49}$$

$$D = \sqrt{149}$$

$$D \approx 12.2$$

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$D = \sqrt{(-9 - 8)^2 + (3 - 0)^2}$$

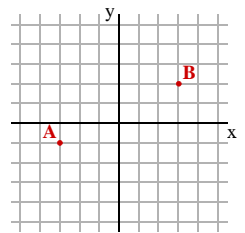
$$D = \sqrt{(-17)^2 + (3)^2}$$

$$D = \sqrt{289 + 9}$$

$$D = \sqrt{298}$$

$$D \approx 17.3$$

Find the distance between the two points below.



A (-3, -1)    B (3, 2)

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

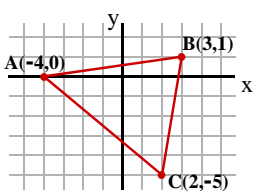
$$D = \sqrt{(3 - -3)^2 + (2 - -1)^2}$$

$$D = \sqrt{(6)^2 + (3)^2}$$

$$D = \sqrt{36 + 9}$$

$$D = \sqrt{45} \approx 6.71 \text{ un.}$$

Find the perimeter of the triangle below to the nearest tenth.



$$\overline{AB} \quad D = \sqrt{(3 - -4)^2 + (1 - 0)^2}$$

$$D = \sqrt{(7)^2 + (1)^2}$$

$$D = \sqrt{49 + 1} = \sqrt{50} \approx 7.1$$

$$\overline{BC} \quad D = \sqrt{(3 - 2)^2 + (1 - -5)^2}$$

$$D = \sqrt{(1)^2 + (6)^2}$$

$$D = \sqrt{1 + 36} = \sqrt{37} \approx 6.1$$

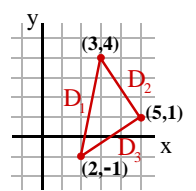
$$\overline{AC} \quad D = \sqrt{(-4 - 2)^2 + (0 - -5)^2}$$

$$D = \sqrt{(6)^2 + (5)^2}$$

$$D = \sqrt{36 + 25} = \sqrt{61} \approx 7.8$$

$$P \approx 7.1 + 6.1 + 7.8 \approx 21.0$$

Determine whether the points (3, 4), (5, 1), and (2, -1) are vertices of a right triangle.



$$D_2 = \sqrt{(5 - 3)^2 + (1 - 4)^2}$$

$$D_2 = \sqrt{(2)^2 + (-3)^2}$$

$$D_2 = \sqrt{4 + 9} = \sqrt{13}$$

$$D_3 = \sqrt{(5 - 2)^2 + (1 - -1)^2}$$

$$D_3 = \sqrt{(3)^2 + (2)^2}$$

$$D_3 = \sqrt{9 + 4} = \sqrt{13}$$

$$D_1 = \sqrt{(3 - 2)^2 + (4 - -1)^2}$$

$$D_1 = \sqrt{(1)^2 + (5)^2}$$

$$D_1 = \sqrt{1 + 25} = \sqrt{26}$$

$$a^2 + b^2 = c^2$$

$$\sqrt{13}^2 + \sqrt{13}^2 = \sqrt{26}^2$$

$$13 + 13 = 26 \quad \text{Yes}$$