

10-3 Distance Formula

I can use the Distance Formula to find the distance between two points.

I can classify a triangle based on its side lengths.

Vocabulary

Equilateral Triangle: all equal side lengths

Isosceles Triangle: 2 sides same

Scalene Triangle: no sides same

Distance Formula:

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

where (x_1, y_1) (x_2, y_2)

Find the distance between points B and C

x_1, y_1
C(0,7)

1d. 2

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

$$\sqrt{(10 - 0)^2 + (0 - 7)^2}$$

A(0,0)

x_2, y_2
B(10,0)

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

Find the distance between the two given points:

a. x_1 y_1 x_2 y_2
 C(-4,-6) and D(5,-1)

b. x_1 y_1 x_2 y_2
 E(-5,6) and F(8,-4)

$$\sqrt{(5 - (-4))^2 + (-1 - (-6))^2}$$

$$10.29$$

$$\sqrt{(8 - (-5))^2 + (-4 - 6)^2}$$

$$16.4$$

Find the distance between the two points

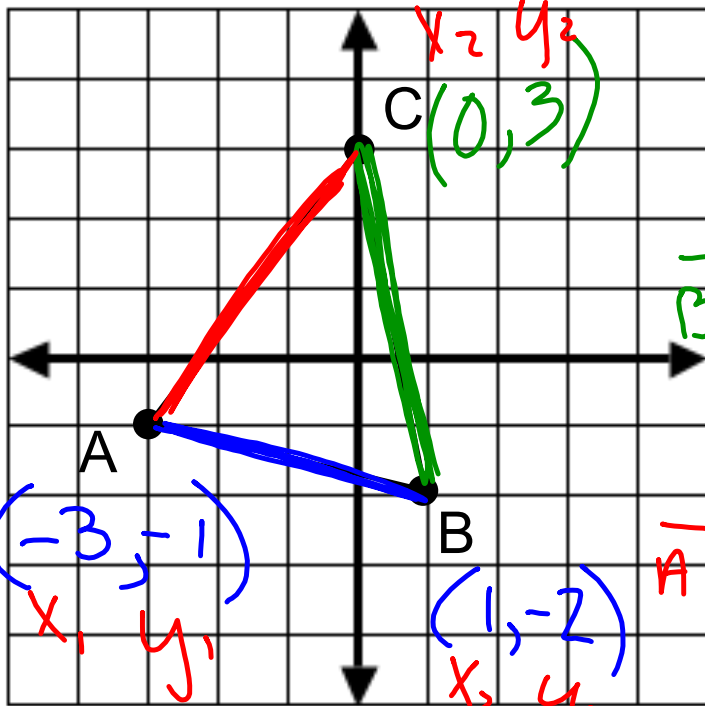
a. $A(0,3)$ and $B(4,-4)$

b. $C(-6,-4)$ and $D(-1,5)$

8.06

10.3

Find the perimeter of the following triangle



$$\overline{AB} = \sqrt{(1-(-3))^2 + (-2-(-1))^2} = 4.1$$

$$\overline{BC} = \sqrt{(1-0)^2 + (-2-3)^2} = 5.09$$

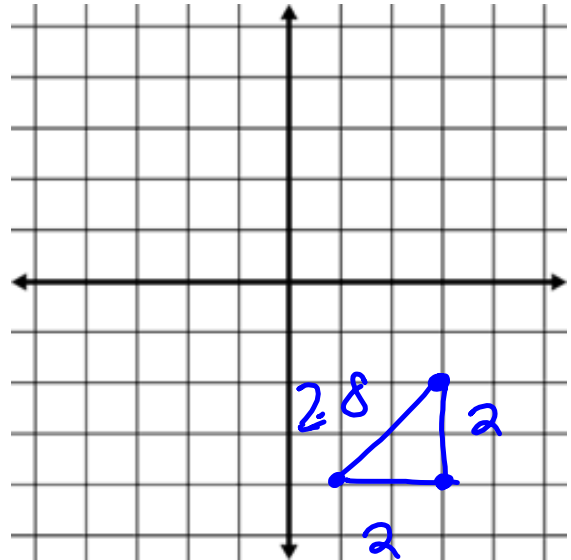
$$\overline{AC} = \sqrt{(0-(-3))^2 + (3-(-1))^2} = 5$$

$$4.1 + 5.09 + 5 = 14.19$$

Find the perimeter of $\triangle XYZ$ and classify the triangle

by its sides.

$X(3,-2)$, $Y(1,-4)$, $Z(3,-4)$



Find the perimeter of $\triangle XYZ$ and classify the triangle by its sides.

$X(2,1)$, $Y(-2,1)$, $Z(0,-3)$

