

1.) Determine if the lines are parallel, perpendicular, or neither.

$$\begin{array}{r}
 6x - 5y = 3 \\
 -6x \qquad | -6x \\
 \hline
 -5y = -6x + 3 \\
 \frac{-5y}{-5} = \frac{-6x + 3}{-5} \\
 y = \frac{6}{5}x - \frac{3}{5}
 \end{array}$$

$6x - 5y = 3$   
 $6y - 5x = 24$

$$\begin{array}{r}
 6y - 5x = 24 \\
 \frac{6y}{6} = \frac{5x + 24}{6} \\
 y = \frac{5}{6}x + 4
 \end{array}$$

neither

2.) Veronica and Sarah live in the same neighborhood. Veronica's house is located at  $(-10, -7)$  and Sarah's house is located at  $(-8, 1)$  on a grid of their neighborhood.

A. What is the distance between their houses?

$$\begin{aligned}
 d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\
 d &= \sqrt{(-8 - (-10))^2 + (1 - (-7))^2} \\
 d &= \sqrt{(2)^2 + (8)^2} & d &= 8.24 \\
 d &= \sqrt{4 + 64} = \sqrt{68}
 \end{aligned}$$

B. Their friend Stephanie lives halfway between their homes. What are the coordinates of Stephanie's home?

$$\begin{array}{r}
 \frac{-10 + (-8)}{2}, \frac{-7 + 1}{2} \\
 \frac{-18}{2}, \frac{-6}{2} \\
 (-9, -3)
 \end{array}$$

# TRIANGLES:

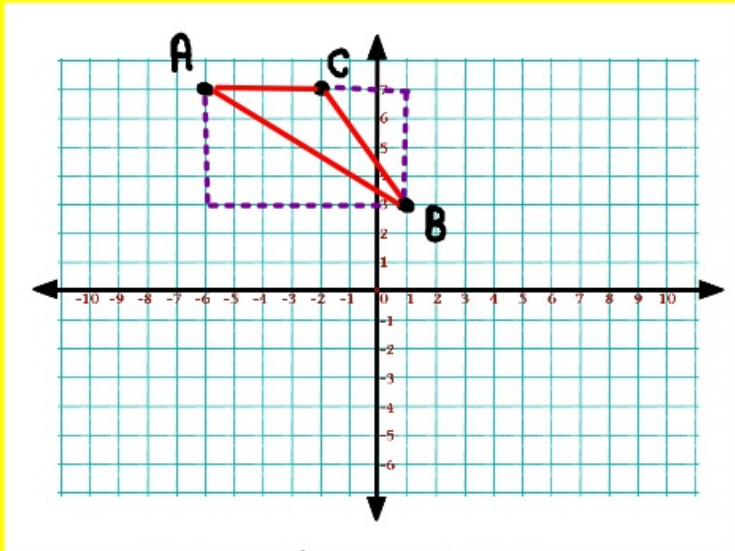
CHARACTERISTICS

CLASSIFYING



# Perimeter:

Given a triangle with vertices A (-6,7) B(1,3) and C(-2, 7)  
What is the approximate perimeter? Round to the nearest hundredth.



How do you calculate the perimeter of ANY shape?

$$AC = 4$$

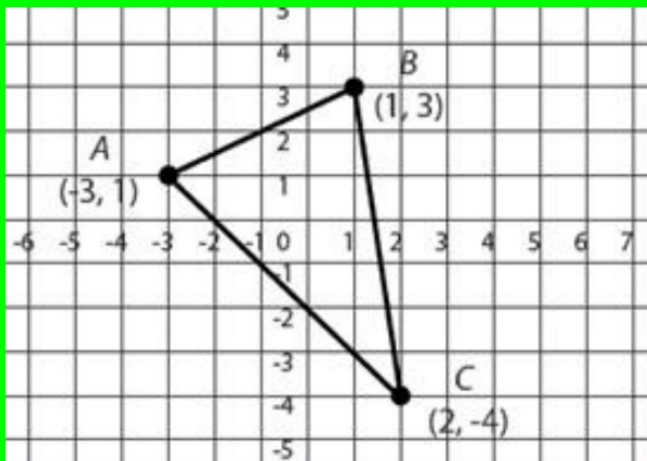
$$\begin{aligned} & \text{AB} \\ & a^2 + b^2 = c^2 \\ & (4)^2 + (7)^2 = c^2 \\ & 16 + 49 = c^2 \\ & \sqrt{65} = \sqrt{c^2} \\ & c = 8.06 \end{aligned}$$

$$\begin{aligned} & \text{CB} \\ & a^2 + b^2 = c^2 \\ & (3)^2 + (4)^2 = c^2 \\ & 9 + 16 = c^2 \\ & \sqrt{25} = \sqrt{c^2} \\ & c = 5 \end{aligned}$$

perimeter: 17.06 units

## Perimeter:

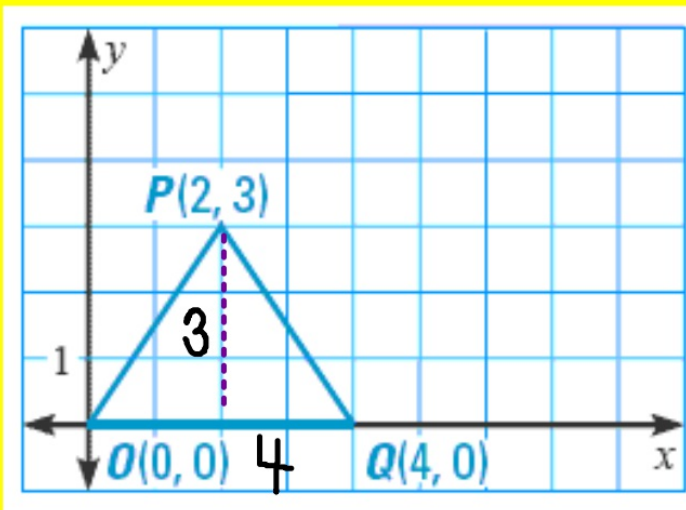
Given a triangle with vertices A  $(-3,1)$  B  $(1,3)$  and C  $(2,-4)$ . Calculate the perimeter of the triangle. Round to the nearest hundredth.



How do you calculate the perimeter of ANY shape?

Area:

Determine the area of triangle OPQ.



How do you calculate the area of a triangle?

$$A = \frac{1}{2}bh$$

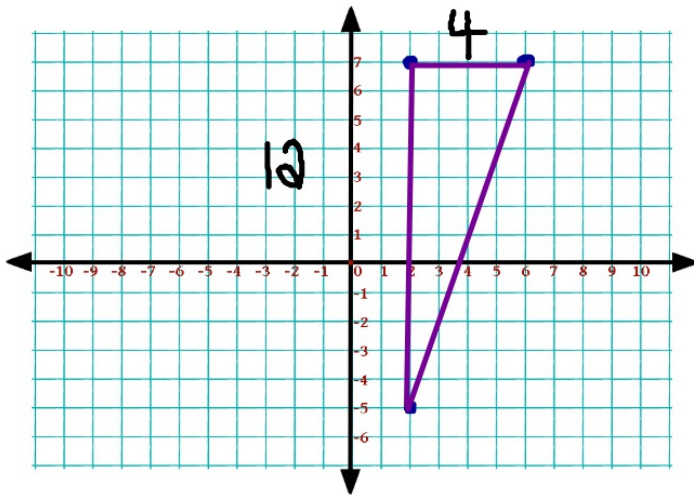
$$A = \frac{1}{2}(4)(3)$$

$$A = 6 \text{ units}^2$$



## Area:

Given a triangle with vertices X(2, -5) Y(2, 7) and Z (6, 7).  
Calculate the area of the triangle.



How do you calculate  
the area of a triangle?

$$A = \frac{1}{2}(4)(12)$$
$$A = 24 \text{ units}^2$$

## Classifying Triangles:

Triangles can be classified by their side lengths.

Match each triangle to the appropriate description.

Equilateral

The lengths of  
at least two sides  
are the same.

Isosceles

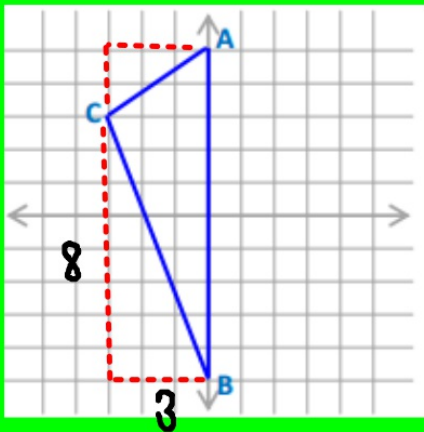
All 3 sides have  
different lengths.

Scalene

All three side  
lengths are the same.

Remember: LENGTH = DISTANCE

Use the side lengths to prove that triangle ABC is scalene.



length AB = 10

length BC =  $a^2 + b^2 = c^2$   
 $(8)^2 + (3)^2 = c^2$   
 $\sqrt{73} = \sqrt{c^2}$   
 $c = 8.54$

length CA =  $a^2 + b^2 = c^2$   
 $(2)^2 + (3)^2 = c^2$   
 $\sqrt{13} = \sqrt{c^2}$   
 $c = 3.61$



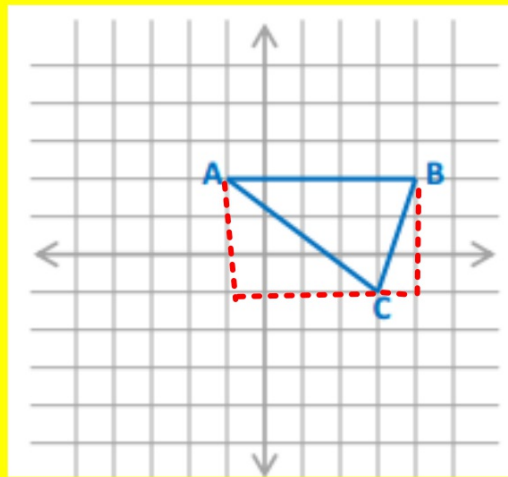
Given triangle ABC, classify it as equilateral, isosceles, or scalene.

$$\overline{AB} = 5$$

$$\overline{AC} = (3)^2 + (4)^2 = C^2$$
$$= \sqrt{25} = \sqrt{C^2}$$

$$\overline{AC} = 5$$

$$\overline{BC} = (1)^2 + (3)^2 = C^2$$
$$\sqrt{10} = C$$
$$C = 3.16$$



## Exit Ticket

Given a triangle with vertices  $A(0,6)$ ,  $B(3,6)$ , and  $C(3,0)$ .

1.) Calculate the perimeter.

2.) Calculate the area.

3.) Use the lengths of each side to determine whether the triangle is equilateral, scalene, or isosceles.