DO NOW
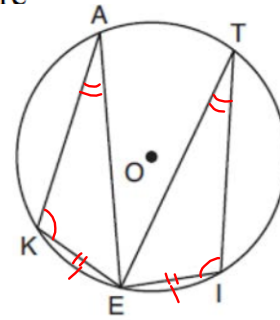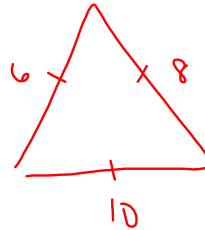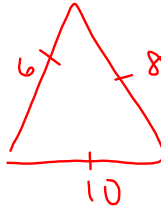
In the diagram below of circle O, points K, A, T, I, and E are on the circle, $\triangle KAE$ and $\triangle ITE$ are drawn, $\overset{\frown}{KE} \cong \overset{\frown}{EI}$, and $\angle EKA \cong \angle EIT$.

$$\triangle \cong \text{ by AAS}$$

Which statement about $\triangle KAE$ and $\triangle ITE$ is always true?
1) ~~They are neither congruent nor similar.~~
2) ~~They are similar but not congruent.~~
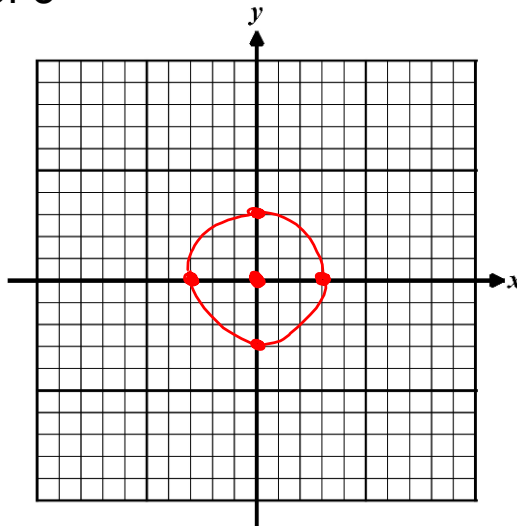3) ~~They are right triangles.~~
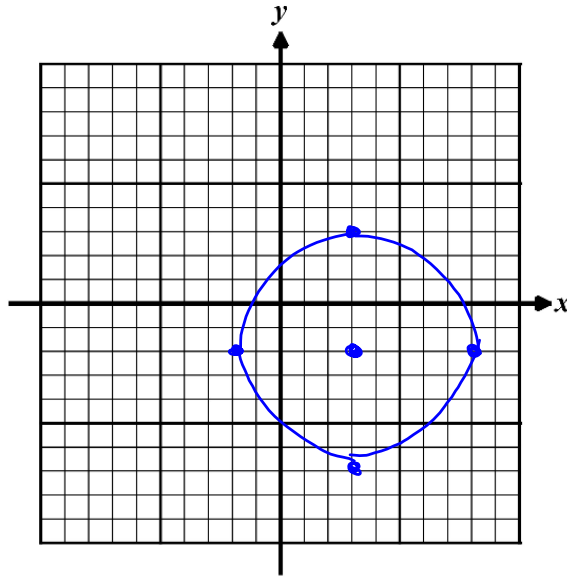4) **They are congruent.**

Apr 11-10:20 AM

Graphing Circles

To graph *any* circle, all you need is a center (x, y) and a radius

EX: Graph a circle with a center at (0, 0) and a radius of 3

Apr 11-10:23 AM

Graph the circle with a center of (3, -2) and a radius of 5

Equation of a Circle

In general, the equation of a circle is:

$$(x - x_1)^2 + (y - y_1)^2 = r^2$$

$$(x - h)^2 + (y - k)^2 = r^2$$

(h, k) is the CENTER ;   r is the RADIUS

EX: What is the equation of a circle whose center is (4, 1) with a radius of 2?

$$(h, k) \qquad r = 2$$

$$\boxed{(x-4)^2 + (y-1)^2 = 4}$$

Write the equation of the circle with the given center and radius:

1) (4, -2) ; r = 8

$$(x-4)^2 + (y - -2)^2 = 8^2 \rightarrow \boxed{(x-4)^2 + (y+2)^2 = 64}$$

2) (0, 0) ; r = 7

$$(x-0)^2 + (y-0)^2 = 49 \rightarrow \boxed{x^2 + y^2 = 49}$$

3) (-2, 0) ; r = 1

$$(x+2)^2 + (y-0)^2 = 1 \rightarrow \boxed{(x+2)^2 + y^2 = 1}$$

Apr 12-10:29 PM

Identify the center and radius of each circle:

$$(x-h)^2 + (y-k)^2 = r^2$$

1) $(x - 1)^2 + (y + 3)^2 = 4$

c : (1, -3)

r = 2

$$\sqrt{r^2} = \sqrt{4}$$

$$r = 2$$

2) $x^2 + y^2 = 81$

c : (0, 0)

r = 9

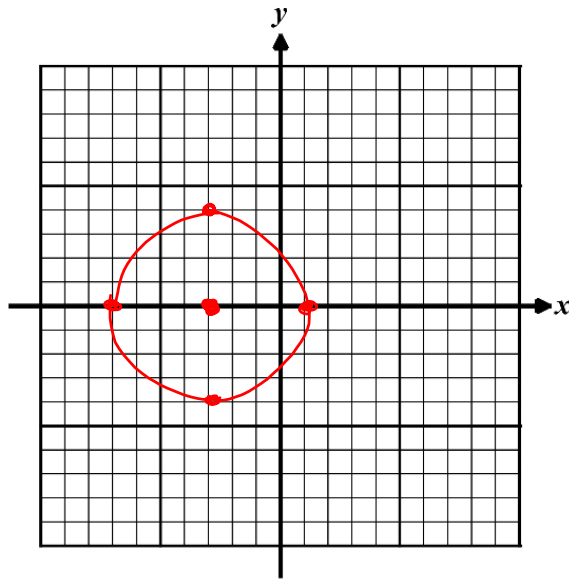3) $x^2 + (y - 3)^2 = 10$ y - k

c : (0, 3)

$r = \sqrt{10}$

Apr 11-10:29 AM

Graph the circle: $(x + 3)^2 + y^2 = 16$

Center: $(-3, 0)$

Radius: 4

Apr 11-10:47 AM

Is the point (4, 1) on the circle whose equation
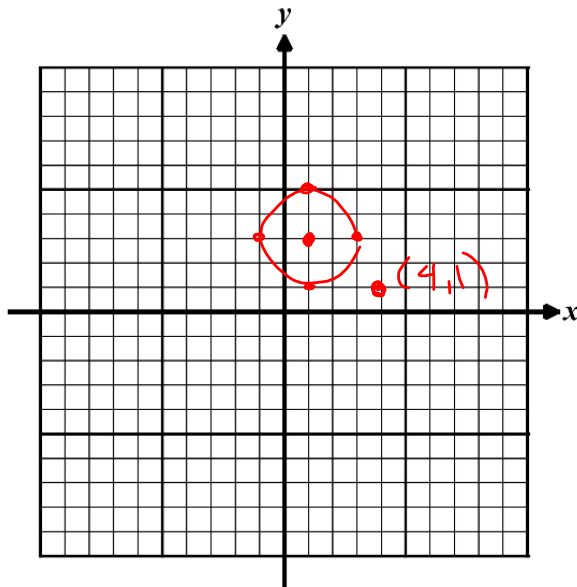is $(x - 1)^2 + (y - 3)^2 = 4$?

x, y

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

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

$9 + 4 \neq 4$

$13 \neq 4$

No!

$c: (1, 3) \quad r = 2$

$(4, 1)$

Apr 12-10:29 PM