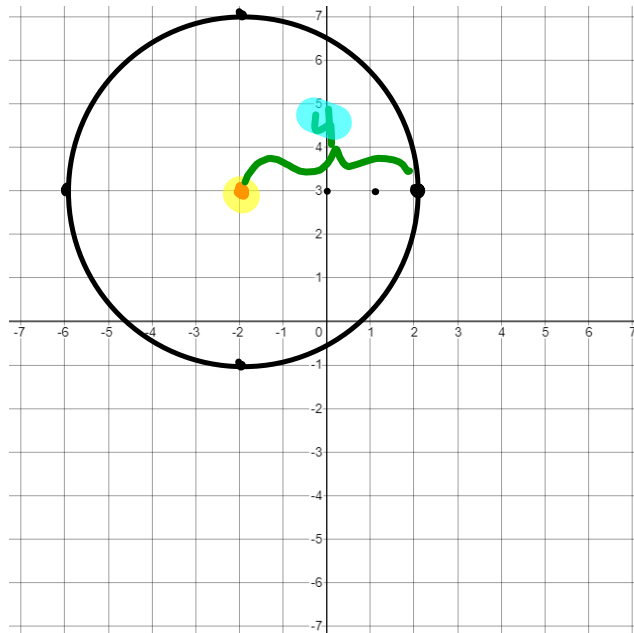


Geometry : Circles

- Graphing
- Finding the Area
- Writing Equations

Draw a circle with a center at $(-2, 3)$ and a radius of 4.



A circle is the set of all points in a plane that are equidistant from a fixed point (the center). The radius is the distance from the center to any point on the circle.

Area of a Circle: $A = \pi r^2$

A: Area
r: radius

Ex: What is the **area** of a circle that has a **radius** of 9cm?

$$A = \pi (9\text{cm})^2$$

$$= 81\pi \text{ cm}^2$$

$$\pi \cdot 81 \text{ cm}^2$$

or

Ex: What is the radius of the circle whose area is $121\pi \text{ in}^2$?

$A = 121\pi \text{ in}^2$

What is R?

$$A = \pi r^2$$

$$121\pi \text{ in}^2 = \pi r^2$$

—————

π

pi cancels

When Solving
Do steps that follow the order of operations

Backwards

SADMEP

$$121 \text{ in}^2 = r^2$$

$$\sqrt{121 \text{ in}^2} = \sqrt{r^2}$$

$11 \text{ in} = r$

get rid of squares by square rooting both sides.

squares and square roots cancel each other.

Standard Form of a circle: $(x - h)^2 + (y - k)^2 = r^2$

Where (h, k) is the center of the circle and r is the radius.

Ex: State the center and radius of the circle with an equation of $(x + 3)^2 + (y - 6)^2 = 25$

center: $(-3, 6)$

its the opposite of the # you see.

$$r^2 = 25$$

$$\sqrt{r^2} = \sqrt{25}$$

$$r = 5$$

because there is a negative built in to the form.

Ex: State the center and radius of the circle with an equation of $(x - 4)^2 + y^2 = 49$

center: $(4, 0)$ $r = 7$

if the letter is by itself it must be 0.

$$(y - 0)^2$$

$$= y^2$$

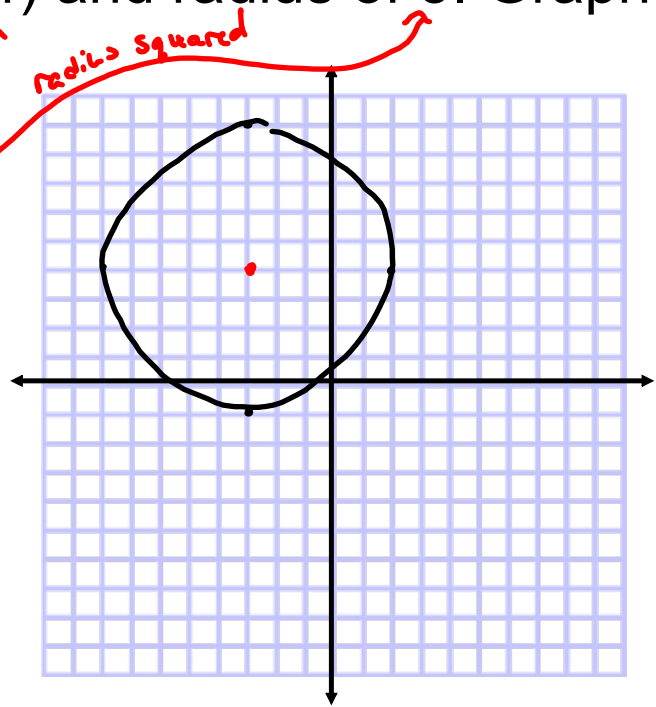
square root to find radius

Lesson 1 Circles

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

Ex: Write the standard form equation for the circle with center $(-3, 4)$ and radius of 5. Graph the circle.

$$(x+3)^2 + (y-4)^2 = 25$$



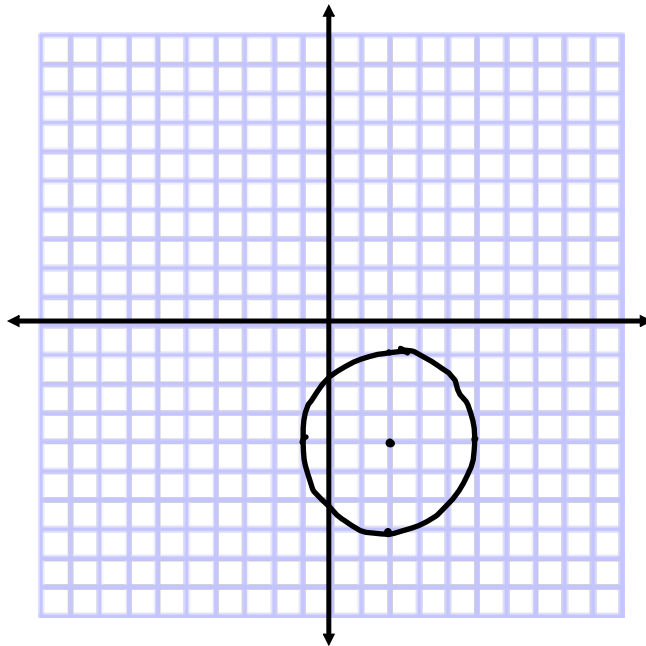
Lesson 1 Circles

Use the standard form equation of a circle to graph the circle.

$$(x - 2)^2 + (y + 4)^2 = 9$$

Center: $(2, -4)$

Radius: 3



Homework: Alg.3 2.8 HW Printoff

Numbers 1, 2, 19-21, 34-38, 42-47 (Only find center and radius)