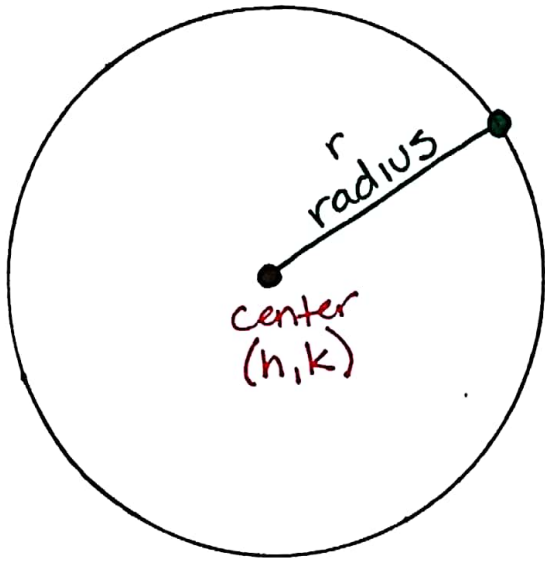


November 9

## Equation of a Circle



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

↑ x-coordinate of center      ↑ y-coordinate of center      ↓ radius

Determine the center and radius of:

Ex1  $(x-3)^2 + (y+4)^2 = 81$

center:  $(3, -4)$

$$\sqrt{r^2} = \sqrt{81}$$

$r = 9$

Ex2  $(x+7)^2 + (y+2)^2 = 1$

center:  $(-7, -2)$

$$\sqrt{r^2} = \sqrt{1}$$

$r = 1$

Ex3  $(x-5)^2 + y^2 = 20$

center:  $(5, 0)$

$$\sqrt{r^2} = \sqrt{20}$$

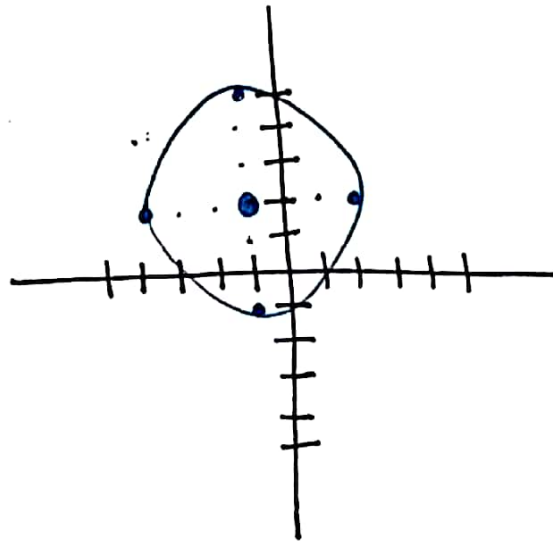
$r = 2\sqrt{5}$

$$\begin{array}{r} 20 \\ \uparrow \\ 10 \text{ (2)} \\ \uparrow \\ 2 \text{ (5)} \\ \hline \sqrt{20} = 2\sqrt{5} \end{array}$$

Ex4 Graph:  $(x+1)^2 + (y-2)^2 = 9$

center:  $(-1, 2)$

$$\sqrt{r^2} = \sqrt{9}$$
$$r = 3$$



Write the equation of the circle:

Ex5 center:  $(-8, 3)$  radius: 2

$$r^2 = 2^2$$
$$r^2 = 4$$

$$(x+8)^2 + (y-3)^2 = 4$$

Ex6 center:  $(0, -1)$  radius: 11

$$r^2 = 11^2$$
$$r^2 = 121$$

$$x^2 + (y+1)^2 = 121$$