Example 1. Find the standard equation of the circle having a center at (2,3) and radius of 5 units.

Step 1.

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

Step 2.

$$(x-2)^2+(y-3)^2=5^2$$

Step 3.

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

Example 2. Find the standard equation of the circle having a center at (3,-2) and radius of 2 units.

Step 1.

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

Step 2.

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

Step 3.

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

Example 3. Find the center and radius of the circle having a standard equation of $(x+1)^2+(y-4)^2=16$.

Step 1: $(x-h)^2+(y-k)^2=r^2$

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

Step 3. C(-1, 4) and r = 4 units

THE STANDARD EQUATION OF A CIRCLE with CENTER AT THE ORIGIN

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

$$(x-0)^2+(y-0)^2=r^2$$

$$\boldsymbol{x^2+y^2=r^2}$$