

Notes: Equations of Circles

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

Center (h, k) Radius = r

Identify the center and radius of each circle:

A) $(x-4)^2 + (y+3)^2 = 25$
 $\uparrow \quad \uparrow$
 $h \quad k$
 $(h, k) = (4, -3)$
 $r = 5$

B) $x^2 + (y-7)^2 = 5$
 $(0, 7) \quad r = \sqrt{5}$

C) $(x+1)^2 + y^2 = 49$
 $(-1, 0) \quad r = 7$

D) $(x-10)^2 + (y+2)^2 = 100$
 $(10, -2) \quad r = 10$
 $(x-h)^2 + (y-k)^2 = r^2$

Write an equation for each circle:

1) Center at origin, $r = 4$

$$x^2 + y^2 = 16$$

2) Center at $(3, -5)$ $d = 8$

$$r = 4 \quad (x-3)^2 + (y+5)^2 = 16$$

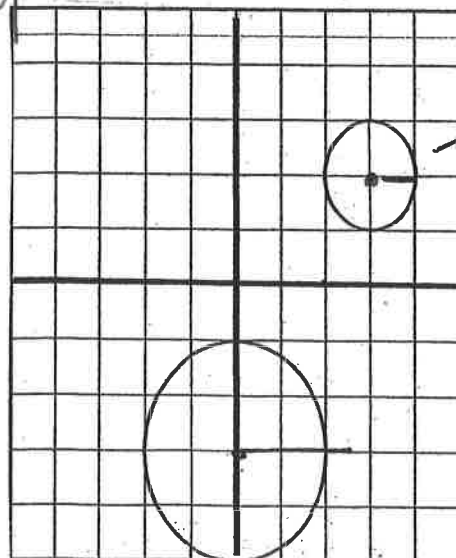
3) Center at $(-3, 4)$ $d = 10$

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

4) Center at $(0, -3)$ $r = 3$

$$x^2 + (y+3)^2 = 9$$

Write an equation for each circle:



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

$(0, -3)$
 $r = 2$
 $x^2 + (y+3)^2 = 4$

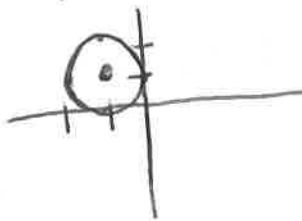
Graph each equation:

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

$(1, 2) \quad r=2$

B) $(x+1)^2 + (y-1)^2 = 1$

$(-1, 1) \quad r=1$



Write an equation for each circle:

- 1) Circle with center at (4,5) and radius with endpoint (6,5)

$r=2 \quad (x-4)^2 + (y-5)^2 = 4$

- 2) Circle with center at (-2,7) and radius with endpoint (4,7)

$r=6 \quad (x+2)^2 + (y-7)^2 = 36$