

(A) Identify the center and radius of each.

1) $x^2 + y^2 = 49$

$(0, 0)$

$r = 7$

5) $(x+10)^2 + (y+9)^2 = 36$

$(-10, -9)$

$r = 6$

3) $(x+2)^2 + (y-3)^2 = 183$

$(-2, 3)$

$r = \sqrt{183}$

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

$(0, -2)$

$r = 11$

(B) Use the information provided to write the standard form equation of each circle.

7) Center: $(-11, -8)$

Radius: 4

$(x+11)^2 + (y+8)^2 = 16$

8) Center: $(-6, -15)$

Radius: $\sqrt{5}$

$(x+6)^2 + (y+15)^2 = 5$

9) $(x-16)^2 + (y-6)^2 = 1$

Translated 4 left, 2 up

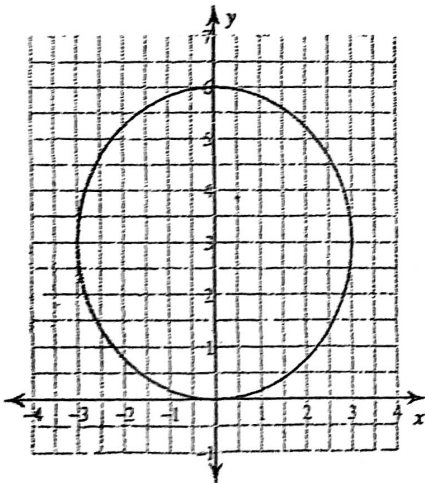
$(x-12)^2 + (y-8)^2 = 1$

10) $(x+5)^2 + (y+7)^2 = 36$

Translated 5 left, 4 down

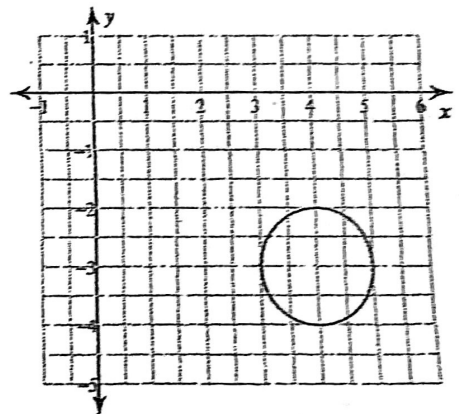
$(x+10)^2 + (y+11)^2 = 36$

11)



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

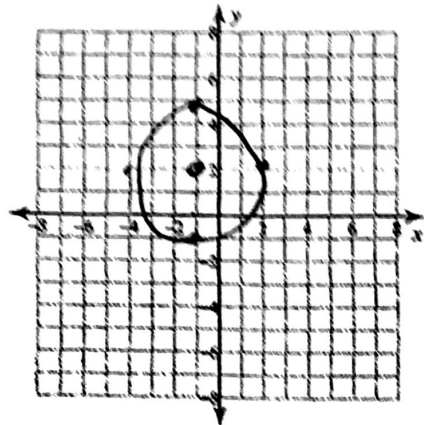
12)



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

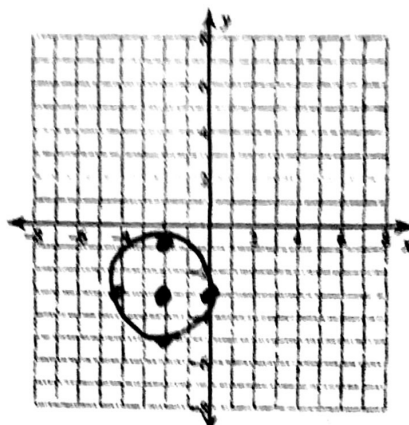
(A) Identify the center and radius of each. Then sketch the graph. Approximate when needed.

13) $(x+1)^2 + (y-2)^2 = 9$



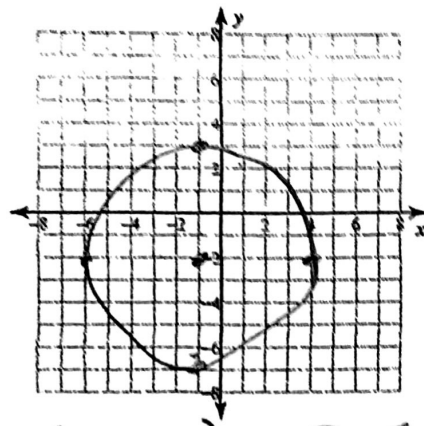
$(-1, 2) \quad r=3$

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



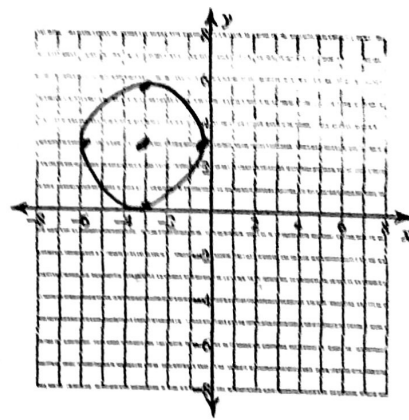
$(-2, -3) \quad r=2$

15) $(x+1)^2 + (y+2)^2 = 25$



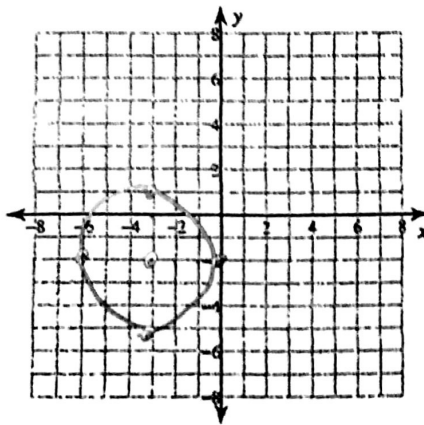
$(-1, -2) \quad r=5$

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



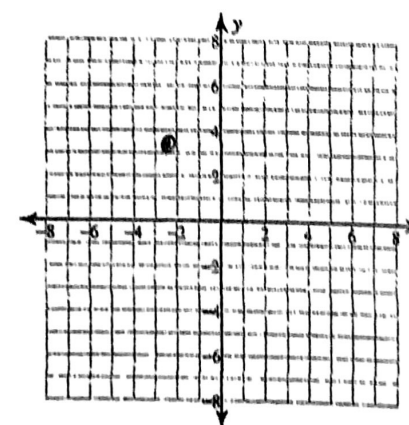
$(-3, 3) \quad r=2\sqrt{2} \approx 2.8$

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



$(-3, -2)$
 $r=3$

18) $(x + \frac{5}{2})^2 + (y - \sqrt{14})^2 = 9$



$(-\frac{5}{2}, \sqrt{14})$
 $\approx (-2.5, 3.7)$

$r=3$

B) Write the equation of the circle with the given characteristics.

13) Ends of a diameter: $(-17, -9)$ and $(-19, -9)$

$$(x+18)^2 + (y+9)^2 = 1$$

15) Center: $(-15, 3\sqrt{7})$
Area: 2π

$$(x+15)^2 + (y-3\sqrt{7})^2 = 2$$

17) Center: $(-5, 12)$
Circumference: 8π

$$(x+5)^2 + (y-12)^2 = 16$$

19) Center: $(2, -5)$
Point on Circle: $(-7, -1)$

$$(x-2)^2 + (y+5)^2 = 97$$

21) Center: $(-15, 9)$
Tangent to $x = -17$

$$(x+15)^2 + (y-9)^2 = 4$$

23) Center lies on the x-axis
Tangent to $x = 7$ and $x = -13$

$$(x+3)^2 + y^2 = 100$$

24) Center lies in the fourth quadrant
Tangent to $x = 7$, $y = -4$, and $x = 17$

$$(x-12)^2 + (y+9)^2 = 25$$