

12) A circle has a radius of 6 and a center at  $(4, -7)$ . What is the equation for the circle?

$$(x-4)^2 + (y+7)^2 = 36$$

13) Center:  $(-11, -8)$ , Radius: 4

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

14) Center:  $(-6, -15)$ , Radius:  $\sqrt{5}$

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

## Precalculus – Chapter 1 Homework Packet

Name: \_\_\_\_\_

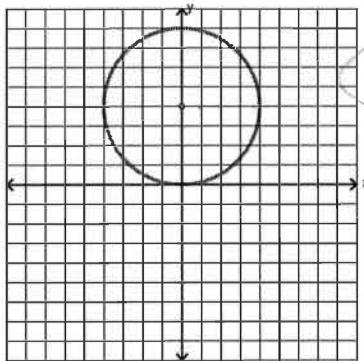
15)  $(x-16)^2 + (y-6)^2 = 1$  translated 4 left, 2 up

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

16)  $(x+5)^2 + (y+7)^2 = 36$  translated 5 left, 4 down

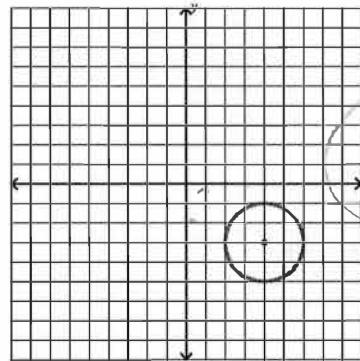
$$(x+10)^2 + (y+11)^2 = 36$$

- 17) Write the equation of the circle in standard form



$$x^2 + (y+4)^2 = 16$$

- 18) Write the equation of the circle in standard form



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

19) Given the following equations, determine which graphs them. Justify your answer.

$x^2 + (y-2)^2 = 1$        $(x-3)^2 + (y+1)^2 = 9$

$x^2 + (y+4)^2 = 16$        $(x+5)^2 + (y-7)^2 = 36$

P.22-24 #59, 61, 63, 67, 69

(59) Center:  $(2, -1)$ ; radius: 4

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

(61) Center:  $(-1, 2)$ ; point on  $\odot$  (solution point):  $(0, 0)$

$$r = \sqrt{(-1-0)^2 + (2-0)^2} = \sqrt{1+4} = \sqrt{5}$$

$$(x+1)^2 + (y-2)^2 = 5$$

(63) Endpoints of diameter:  $(0, 0), (6, 8)$

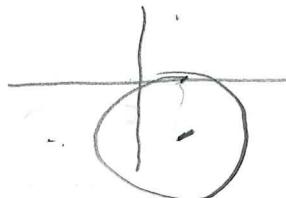
$$\text{midpt} = \text{center}: \left( \frac{6+0}{2}, \frac{8+0}{2} \right) = (3, 4)$$

$$r = \sqrt{(3-0)^2 + (4-0)^2} = \sqrt{9+16} = 5$$

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

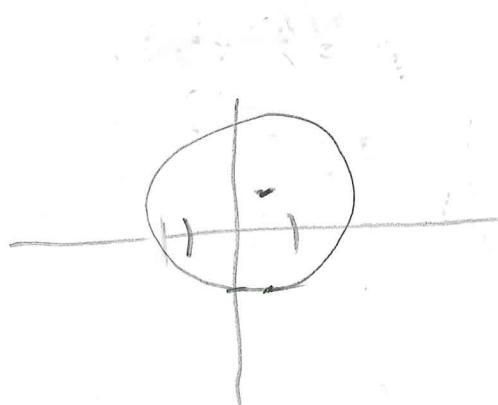
(67)  $(x-1)^2 + (y+3)^2 = 9$

center:  $(1, -3)$   
radius: 3



(69)  $(x-\frac{1}{2})^2 + (y-\frac{1}{2})^2 = \frac{9}{4}$

center:  $(\frac{1}{2}, \frac{1}{2})$   
radius:  $\frac{3}{2}$



PL1-63 #1, 3

①  $D: (-\infty, -1] \cup [1, \infty)$   
 $R: [0, \infty)$

③  $D: [-4, 4]$   
 $R: [0, 4]$



$x = \sqrt{4-y^2}$  (x-axis)  $\rightarrow$   $x = \sqrt{4-y^2} + 4$  (x-axis)  
 $x = \sqrt{4-y^2} + 4$   
 $x = \sqrt{(x-4)^2 + y^2}$   
 $(x-4)^2 + y^2 = x^2$

$(0,0), (4,0)$  : vertices of rectangle  
 $(x,y) = \left(\frac{4x}{5}, \frac{3y}{5}\right)$  : vertices of square  
 $y = \sqrt{4-x^2} = \sqrt{(4-x)^2 + (0-x)^2}$   
 $(4-x)^2 + (0-x)^2 = x^2$

$x = \sqrt{(4-x)^2 + (0-x)^2}$  (x-axis)  
 $(0,-x)$  : vertex  
 $(0,x)$  : center

$x = \sqrt{(5-x)^2 + (3-x)^2}$  (x-axis)  
 $(x-5)^2 + (x-3)^2 = x^2$   
 $(5-x)^2 + (3-x)^2 = x^2$