Geometry Ch 10-7 Exer., pg 692 #1, 3-14, 17-25

1. The standard equation of a circle can be written for any circle with known <u>radius</u> and <u>center</u>.

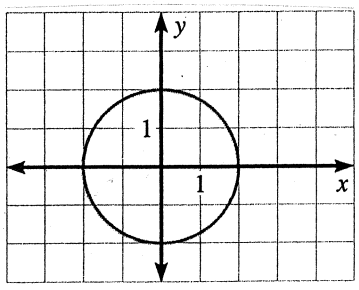
$$(x-h)^2 + (y-k)^2 = r^2$$

center (h,k)

radius, r

Write the standard equation of the circle.

3.



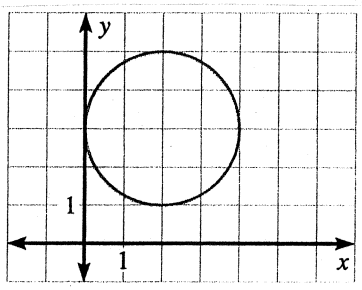
Center = $(0,0)$

Radius = 2

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

$\boxed{x^2 + y^2 = 4}$

4.



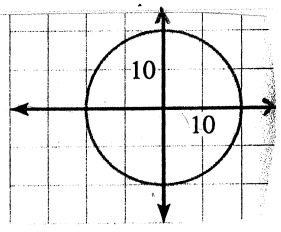
Center = $(2,3)$

Radius = 2

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

$\boxed{(x-2)^2 + (y-3)^2 = 4}$

5.



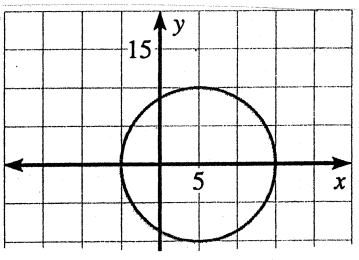
Center = $(0,0)$

Radius = 20

$(x-0)^2 + (y-0)^2 = 20^2$

$\boxed{x^2 + y^2 = 400}$

6.



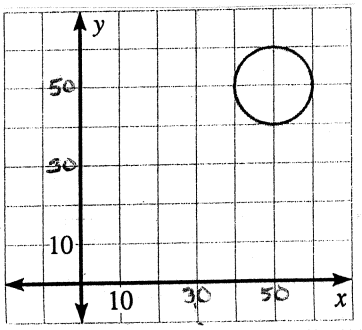
Center = $(5,0)$

Radius = 10

$(x-5)^2 + (y-0)^2 = 10^2$

$\boxed{(x-5)^2 + y^2 = 100}$

7.



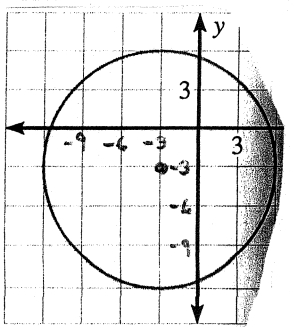
Center = (50, 50)

Radius = 10

$(x-50)^2 + (y-50)^2 = 10^2$

$\boxed{(x-50)^2 + (y-50)^2 = 100}$

8.



Center = (-3, -3)

Radius = 9

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

$\boxed{(x+3)^2 + (y+3)^2 = 81}$

Write the standard equation of the circle with the given center and radius.

9. Center (0, 0); Radius 7

$(x-0)^2 + (y-0)^2 = 7^2$

$\boxed{x^2 + y^2 = 49}$

10. Center (-4, 1); Radius 1

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

$\boxed{(x+4)^2 + (y-1)^2 = 1}$

11. Center (7, -6); Radius 8

$(x-7)^2 + (y-(-6))^2 = 8^2$

$\boxed{(x-7)^2 + (y+6)^2 = 64}$

12. Center (4, 1); Radius 5

$(x-4)^2 + (y-1)^2 = 5^2$

$\boxed{(x-4)^2 + (y-1)^2 = 25}$

13. Center (3, -5); Radius 7

$(x-3)^2 + (y-(-5))^2 = 7^2$

$\boxed{(x-3)^2 + (y+5)^2 = 49}$

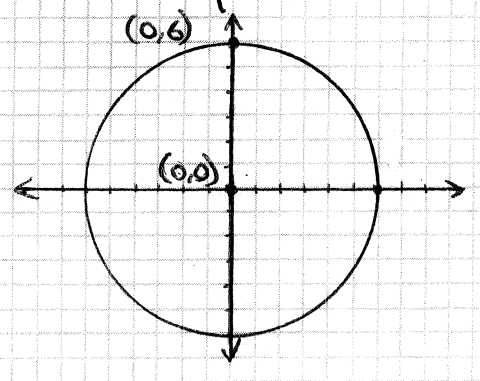
14. Center (-3, 4); Radius 5

$(x-(-3))^2 + (y-4)^2 = 5^2$

$\boxed{(x+3)^2 + (y-4)^2 = 25}$

Use the info given to write the standard equation of the circle.

17. Center is $(0,0)$, a point on the circle is $(0,6)$

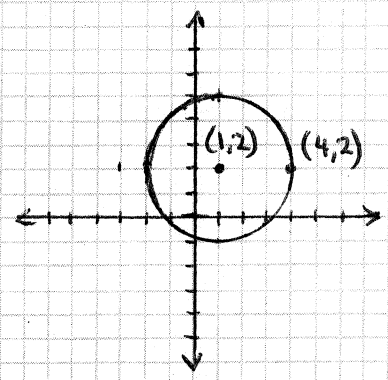


radius is 6

$(x-0)^2+(y-0)^2=6^2$

$\boxed{x^2+y^2=36}$

18. Center is $(1,2)$, a point on the circle is $(4,2)$

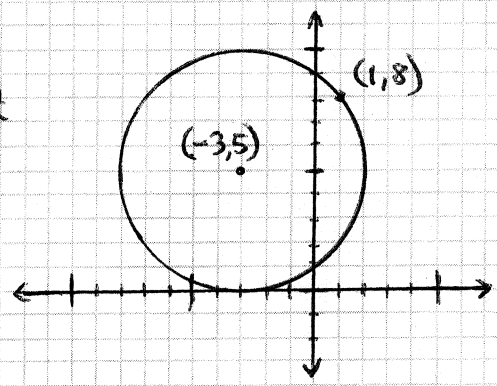


radius is 3

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

$\boxed{(x-1)^2+(y-2)^2=9}$

19. Center is $(-3,5)$, a point on the circle is $(1,8)$



Use Pyth Thm for radius:

radius $=\sqrt{(-3-1)^2+(5-8)^2}=\sqrt{16+9}=\sqrt{25}$

radius $=5$

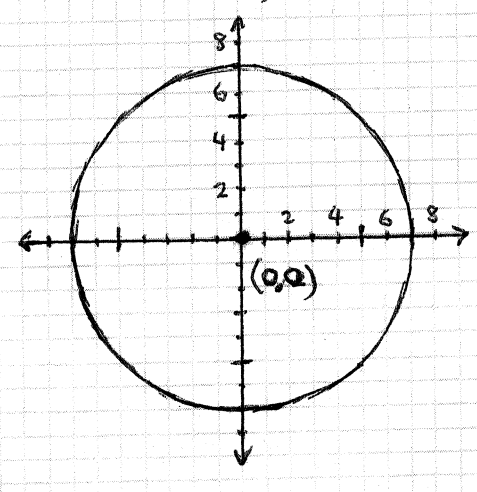
$(x-(-3))^2+(y-5)^2=5^2$

$\boxed{(x+3)^2+(y-5)^2=25}$

Graph the equation.

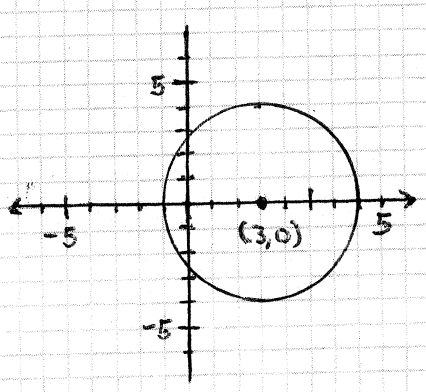
20. $x^2 + y^2 = 49$

center $(0,0)$, radius 7



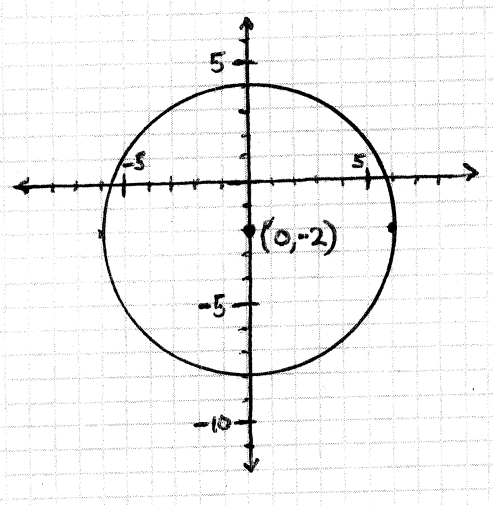
21. $(x-3)^2 + y^2 = 16$

center $(3,0)$, radius 4



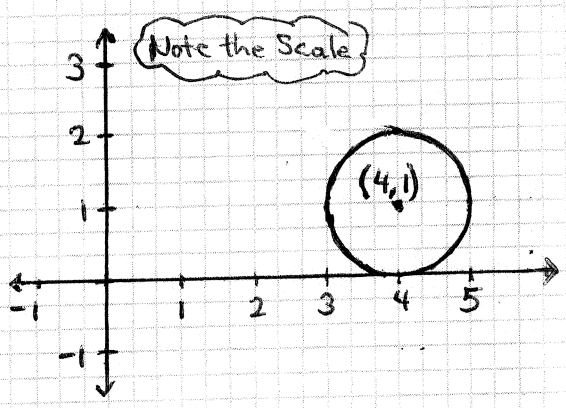
22. $x^2 + (y+2)^2 = 36$

center $(0,-2)$, radius 6



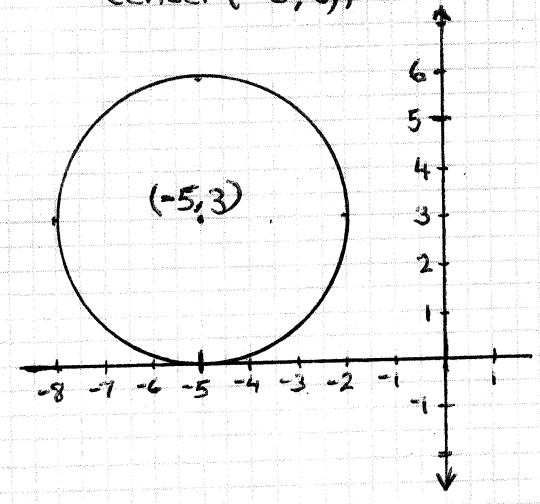
23. $(x-4)^2 + (y-1)^2 = 1$

center $(4,1)$, radius 1



24. $(x+5)^2 + (y-3)^2 = 9$

center $(-5,3)$, radius 3



25. $(x+2)^2 + (y+6)^2 = 25$

center $(-2,-6)$, radius 5