HONORS PRECALC
CIRCLES ASSIGNMENT

NAME_____

Write an equation for each circle given the center and radius.

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

2. (0, 3), r = 7
   $x^2+(y-3)^2=49$

3. (-8, 7), r = $\frac{1}{2}$
   $(x+8)^2+(y-7)^2=1/4$

4. (6, -8), r = $\sqrt{10}$
   $(x-6)^2+(y+8)^2=10$

5. (-5, 8), r = $\frac{5}{6}$
   $(x+5)^2+(y-8)^2=25/36$

Find the coordinates of the center and the radius of each circle.

6. $x^2+(y+4)^2=4$
   C(0,-4) r=2

7. $(x-3)^2+(y-1)^2=25$
   C(3,1) r=5

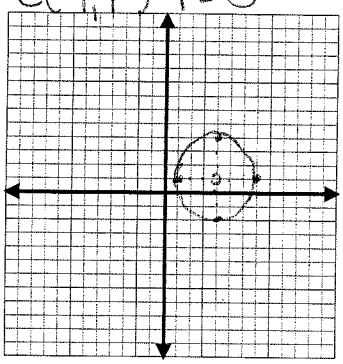
8. $(x-3)^2+(y+7)^2=50$
   C(3,-7) $r=\sqrt{50}=5\sqrt{2}$

9. $(x+5)^2+(y+10)^2=81$
   C(-5,-10) r=9

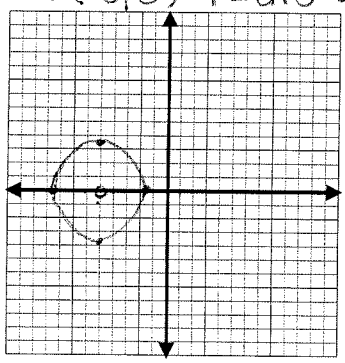
10. $\frac{3x^2}{3}+\frac{3y^2}{3}=\frac{48}{3}$
    $x^2+y^2=16$ C(0,0)
    r = 4

Graph the circles.

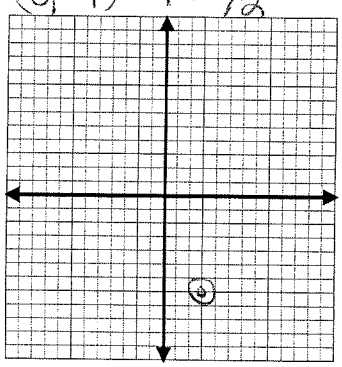
11. $(x-4)^2+(y-1)^2=9$
    C(4,1) r=3



12. $(x+5)^2+Y^2=12$
    C(-5,0) $r=2\sqrt{3}\approx 3.5$

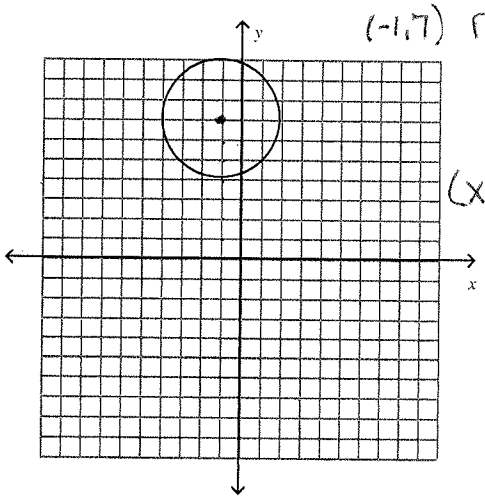


13. $(x-3)^2+(y+7)^2=\frac{1}{4}$
    (3,-7) r=1/2



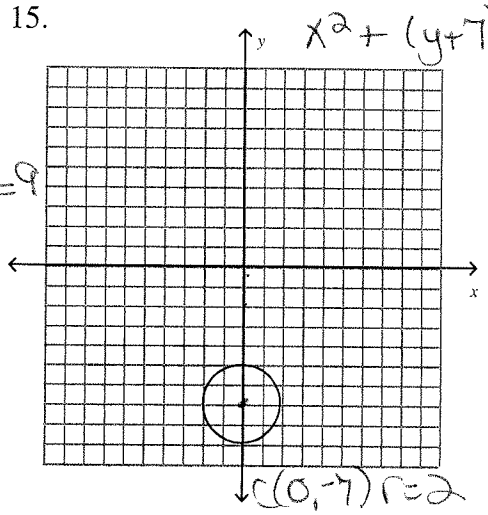
Write the equation of the circle for each graph.

14. (-1,7) r=3



$(x+1)^2+(y-7)^2=9$

15. $x^2+(y+7)^2=4$



C(0,-7) r=2

Write the equation of the circles described below. Also, find the area of each circle. πr^2

16. Center (8, -4), goes through (5, -6)

$r = \sqrt{9+4} = \sqrt{13}$ $r^2 = 13$

$(x-8)^2 + (y+4)^2 = 13$

$\pi(\sqrt{13})^2 = 13\pi = A$

17. Center (1, 5), goes through (-6, 0)

$r = \sqrt{49+25} = \sqrt{74}$ $r^2 = 74$

$(x-1)^2 + (y-5)^2 = 74$

$A = 74\pi$

18. Endpoints of the diameter: (4, -5) and (8, -7)

$C(6, -6)$ $r = \sqrt{4+1} = \sqrt{5}$

$r^2 = 5$ $A = 5\pi$

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

19. Endpoints of the diameter: (6, 3) and (-10, 15)

$C(-2, 9)$ $r = \sqrt{64+36} = \sqrt{100} = 10$

$r^2 = 100$

$(x+2)^2 + (y-9)^2 = 100$ $100\pi = A$

Put the following equations of circles in standard form. Graph #20, #21 and one of your choice

20. $x^2 + y^2 + 2x - 10 = 0$

$x^2 + 2x + 1 + y^2 = 10$

$(x+1)^2 + y^2 = 11$

$(-1, 0)$ $r = \sqrt{11}$

21. $\frac{4x^2}{4} + \frac{4y^2}{4} + \frac{36y}{4} + \frac{5}{4} = 0$

$x^2 + y^2 + 9y + \frac{81}{4} = -\frac{5}{4} + \frac{81}{4}$

$x^2 + (y + 9/2)^2 = 76/4$ $r = \frac{\sqrt{76}}{2} = \frac{2\sqrt{19}}{2} = \sqrt{19}$

$C(0, -9/2)$

2 | 126
2 | 38
19

22. $x^2 + y^2 + 9x - 8y + 4 = 0$

$x^2 + 9x + \frac{81}{4} + y^2 - 8y + 16 = -4 + \frac{81}{4} + 16$

$(x + 9/2)^2 + (y-4)^2 = \frac{129}{4}$ $C(-9/2, 4)$

$r = \sqrt{129}/2$

23. $x^2 - 12x + 84 = -y^2 + 16y$

$x^2 - 12x + 36 + y^2 - 16y + 64 = -84 + 36 + 64$

$(x-6)^2 + (y-8)^2 = 16$

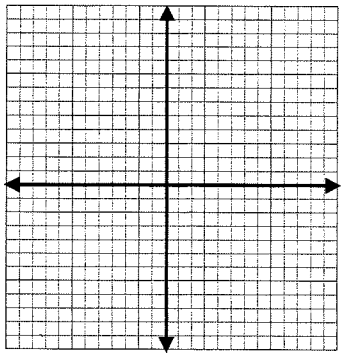
$C(6, 8)$ $r = 4$

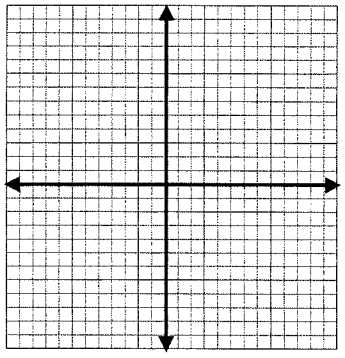
24. $x^2 + y^2 + 2x + 4y = 9$

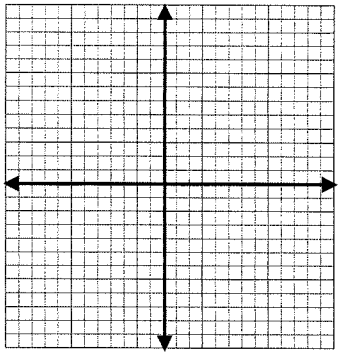
$x^2 + 2x + 1 + y^2 + 4y + 4 = 9 + 1 + 4$

Graph #20 $(x+1)^2 + (y+2)^2 = 14$ **Graph #21** **Graph #_____(you pick)**

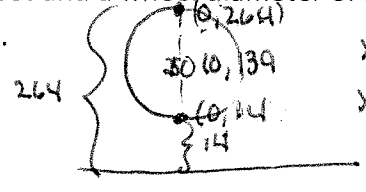
$\sqrt{11} \approx 3.3$







25. The original Ferris wheel was built in 1893 by bridge builder George W. Ferris. The Ferris wheel was originally built for the 1893 World's Fair in Chicago, but was later reconstructed for the 1904 World's Fair in St. Louis. It had a maximum height of 264 feet and a wheel diameter of 250 feet. Find an equation for the wheel if the center of the wheel is on the *y-axis*.



$x^2 + (y-139)^2 = (125)^2$

$x^2 + (y-139)^2 = 15,625$