#9 Classwork Circles $(x-h)^2+(y-k)^2=r^2$ Name _____

Write the equation for each circle.

2. Center (6, -5) radius $r = 4$

$(x-6)^2+(y+5)^2=16$

3. Center (-11, 3) radius $r = 9$

$(x+11)^2+(y-3)^2=81$

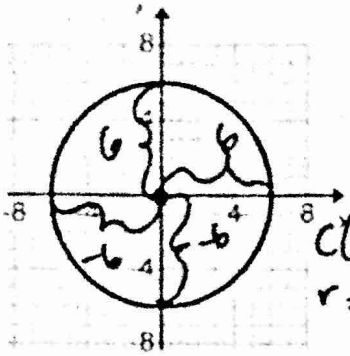
6. Center (-1, 9) and containing the point (2, 5)

$(x+1)^2+(y-9)^2=25$

7. Center (-2, -5) and containing the point (-10, -20)

$(x+2)^2+(y+5)^2=289$

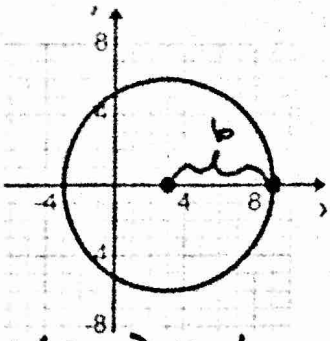
4.



$C(0,0)$
$r=6$

$x^2+y^2=36$

5.



$C(3,0)$ $r=6$

$(x-3)^2+y^2=36$

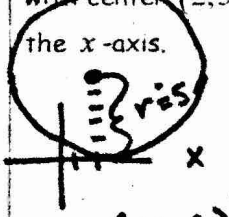
8. Suppose the epicenter of an earthquake is located at the point (5, 2) and is felt up to 10 miles away. Use the equation of a circle to find the locations that are affected.

$C(5,2)$ $r=10$

$(x-5)^2+(y-2)^2=100$

1. Write the equation of the circle with center $(2,5)$ and tangent to the x-axis.

$r=5$



$(x-2)^2+(y-5)^2=25$

2. Write the equation of the circle with center $(-4,2)$ and tangent to the y-axis.

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

3. Write the equation of the circle with center $(7,-1)$ and tangent to the y-axis.

$(x-7)^2+(y+1)^2=49$

4. Write the equation of the circle with center $(-3,6)$ and tangent to the x-axis.

$(x+3)^2+(y-6)^2=36$

5. Rewrite the circle $x^2+y^2-10x-11=0$ in standard form. Then find the center and the radius.

$\frac{x^2-10x}{2}+y^2=11+5^2$

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

$C(5,0)$ $r=6$

6. Rewrite the circle $x^2-2x+y^2-14y+49=0$ in standard form. Then find the center and the radius.

± 2 ± 2

r^2

$-49+1^2+7^2$

$-49+1+49=1$

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

$C(1,7)$ $\sqrt{r^2}=\sqrt{1}$ $r=1$

7. Rewrite the circle $x^2+y^2-6y=72$ in standard form. Then find the center and the radius.

$x^2+\frac{y^2-6y}{2}=72+3^2$

$x^2+(y-3)^2=81$ $C(0,3)$ $r=9$

8. Rewrite the circle $x^2+4x+y^2-8y=-11$ in standard form. Then find the center and the radius.

$\frac{x^2+4x}{2}+\frac{y^2-8y}{2}=-11+2^2+4^2$

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

$(-2,4)$ $r=3$

#10 Homework Circles

Name _____

Write the equation for each circle.

1. Center (3, 2) radius $r = 7$

$(x-3)^2 + (y-2)^2 = 49$

2. Center (5, 1) radius $r = 10$

$(x-5)^2 + (y-1)^2 = 100$

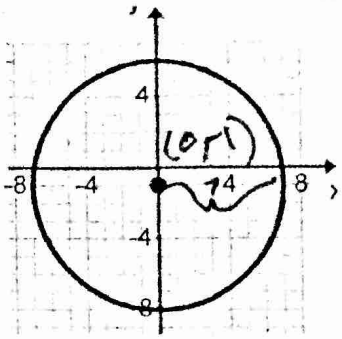
3. Center (12, -3) and containing the point (-12, 7)

$(x-12)^2 + (y-3)^2 = 592$

4. Center (-2, -5) and containing the point (-2, -1)

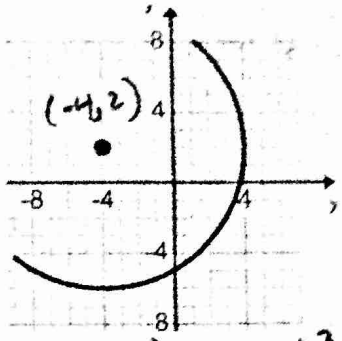
$(x+2)^2 + (y+5)^2 = 16$

6.



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

7.



$(x+4)^2 + (y-2)^2 = 64$

5. Suppose the epicenter of an earthquake is located at the point (-5, -7) and is felt up to 8 miles away. Use the equation of a circle to find the locations that are affected.

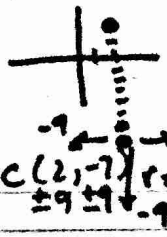
$(x+5)^2 + (y+7)^2 = 64$

Sketch a graph, then Find the Domain and Range for each:

8. $(x-2)^2 + (y+7)^2 = \sqrt{81} = 9$

D: $-7 \le x \le 11$

R: $-16 \le y \le 2$



$C(2,-7)$ $r=9$
$\pm 9 \pm 9$

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

$r = \pm 3$
$C(-2,0)$
$\pm 3 \pm 3$

D: $-5 \le x \le 1$

R: $-3 \le y \le 3$

10. $x^2 + y^2 = 8$

$C(0,0)$
$r = \pm\sqrt{8}$

D: $-\sqrt{8} \le x \le \sqrt{8}$

R: $-\sqrt{8} \le y \le \sqrt{8}$

11. The circle with center (2,3) and the circle with center (-1, -1) are tangent at the point (5,7).

A) Equation small circle:

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

$5-2=3^2$ $7-3=4^2$

$9 + 16$

B) Equation large circle:

$(x+1)^2 + (y+1)^2 = 100$

$5+1=6^2$ $7+1=8^2$

$36 + 64$

C) Equation of the line tangent to both circles.

Omit

12. Write the equation of the circle with center (-4, 0) and circumference 16π.

$\frac{2\pi r}{2} = \frac{16\pi}{2}$

$\frac{\pi r}{\pi} = \frac{8\pi}{\pi}$

$r = 8$

13. Write the equation of the circle with center $\left(\frac{2}{3}, \frac{5}{8}\right)$ and area 49π.

$A = \pi r^2$

$\frac{\pi r^2}{\pi} = \frac{49\pi}{\pi}$

$\sqrt{r^2} = \sqrt{49}$

$r = 7$