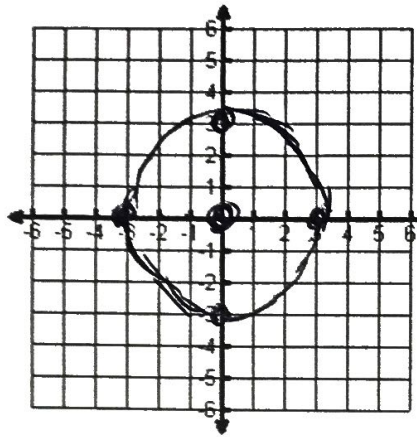Geometry
Unit 7B – Coordinate Geometry
Day 1 Homework – Equations of Circles

Name _____
Date: _____ Block _____

Graph the following circles. State the center and radius.
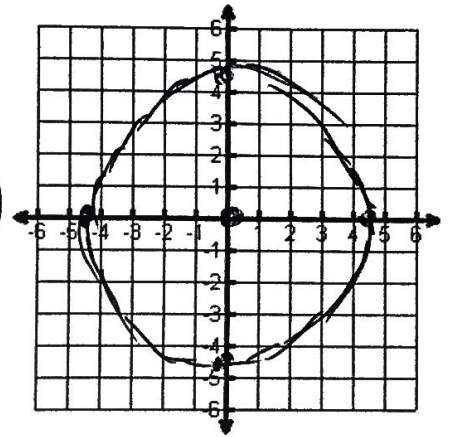
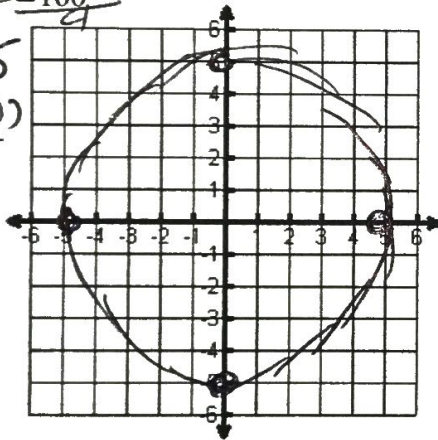1. $x^2 + y^2 = 9$

Center: $(0,0)$

Radius: 3

2. $x^2 + y^2 = 20$
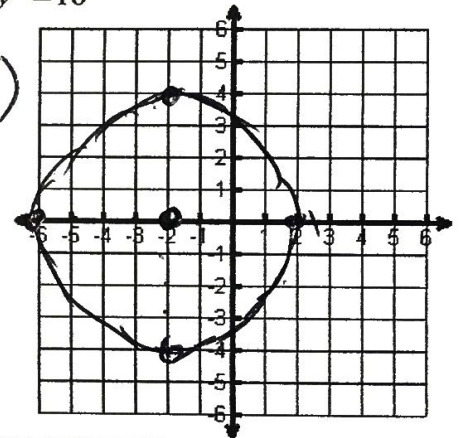
Center: $(0,0)$

Radius: 4.5
$\sqrt{20}$

3. $\dfrac{4x^2}{4} + \dfrac{4y^2}{4} = \dfrac{100}{4}$

$x^2 + y^2 = 25$

Center: $(0,0)$
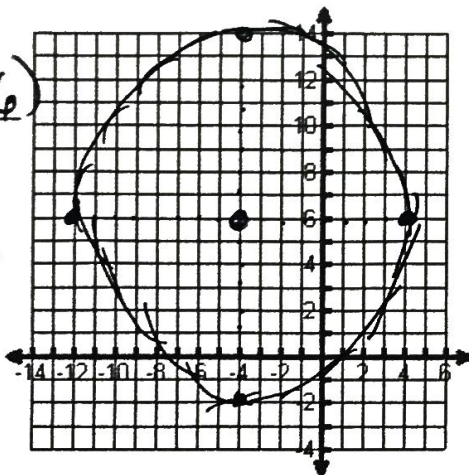
Radius: 5

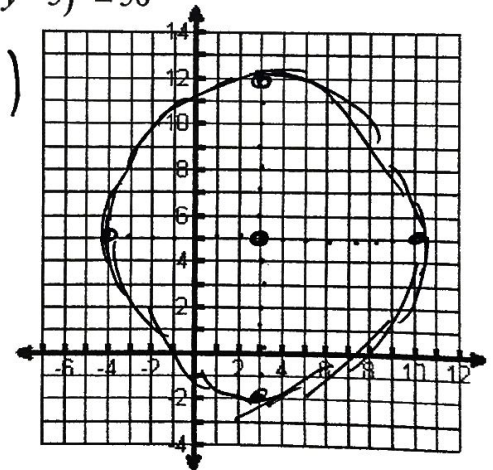4. $(x+2)^2 + y^2 = 16$

Center: $(-2,0)$

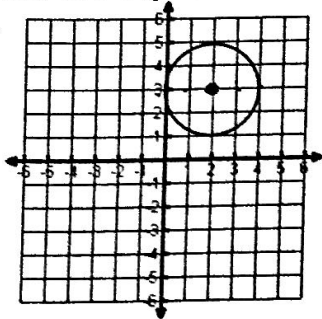Radius: 4

5. $(x+4)^2 + (y-6)^2 = 64$

Center: $(-4,6)$

Radius: 8

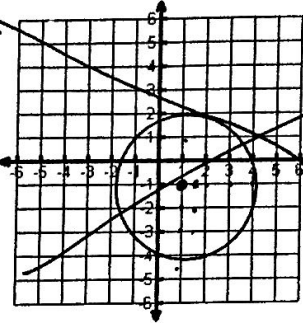6. $(x-3)^2 + (y-5)^2 = 50$

Center: $(3,5)$

Radius: 7.1
$\sqrt{50}$
7.1

Write the equation of the circle in standard form.

7. $C=(2,3) \; r=2$

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

8. $C= \qquad , \quad r=$

Write the equation of a circle with the given radius and whose center is the origin.

9. $r = 13$

$$x^2+y^2=169$$

10. $r = \sqrt{8}$

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

11. $r = 3\sqrt{5} \quad \cdot 3\sqrt{5} \; =9\cdot5$

$$x^2+y^2=45$$

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

12. $r = 6$, Center at $(3, -1)$

$$(x-3)^2+(y+1)^2=36$$

13. $r = 2\sqrt{6}$, Center at $(-5, 2)$ $\quad \dfrac{2\sqrt{6}\cdot2\sqrt{6}}{4\cdot6}$

$$(x+5)^2+(y-2)=24 \qquad 24$$

Write the equation of the circle given a point on the circle and its center.

14. Point $(-2, -2)$, Center $(-5, -8)$ $\quad r=2\sqrt{10}$

$$r=\sqrt{(-5+3)^2+(-8+2)}$$
$$(-2)^2+(-6)^2$$
$$4+34$$
$$\sqrt{40} \quad (x+5)^2+(y+8)^2=40$$

15. Point $(-3, 1)$, Center $(5, 4)$ $\quad r=\sqrt{73}$

$$r=\sqrt{(5+3)^2+(4-1)}$$
$$8^2+3^2$$
$$64+9$$
$$(x+3)+(y-1)^2=73$$

Write the equation of the circle given the endpoints of a diameter of the circle.

Find mp

16. $(-3, 5)$ and $(5, -1)$ $\quad r=15$

find mp $\left(\dfrac{-3+5}{2}, \dfrac{5-1}{2}\right)$ $\quad (x-1)^2+(y-2)^2=25$

$$\dfrac{2}{2} \qquad \dfrac{4}{2}$$

$$C=(1,2)$$

$$r=\sqrt{(1-5)^2+(2+1)^2} \quad 16+9=25$$
$$4^2 \qquad 3^2$$

17. $(8, 3)$ and $(2, 5)$ $\quad r=2\sqrt{5}$

$\left(\dfrac{8+2}{2}, \dfrac{3+5}{2}\right)$ $\quad (x-5)^2+(y-4)^2=10$

$$\dfrac{10}{2} \qquad \dfrac{8}{2}$$

$$C=(5,4)$$

$$r=\sqrt{(5-2)^2+(4-5)^2}$$
$$(3)^2+(1)^2 \qquad 9+1=10$$