Circles HW KEY

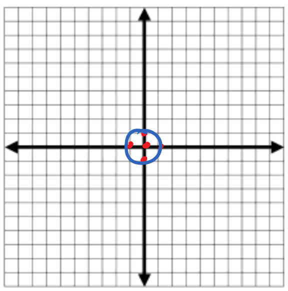
Friday, April 17, 2015 10:06 AM

Precalculus
Conic Section – Circles
Worksheet #1

Name:
Period:

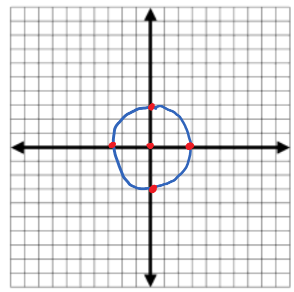
Directions: Give the center and radius of each circle. Then, graph the circle. Be sure to clearly mark the center of the circle and four points on the circumference of the circle.

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



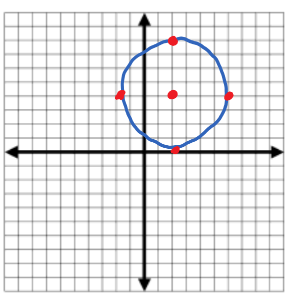
centered @ origin
$r = 1$

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



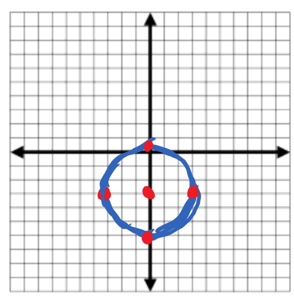
centered @ origin
$r = 3$

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



center: $(2,4)$
$r = 4$

4. $x^2 + (y+3)^2 = 10$



center: $(0,-3)$
$r = \sqrt{10} \approx 3.1$

5. Write the equation of a circle whose center is located at (-3,4) and has a radius of 8.

$$(x+3)^2 + (y-4)^2 = 64$$

6. Write the equation of a circle whose diameter has endpoints located at (-2,-5) and (6, 3).

$d = 8\sqrt{2} \Rightarrow r = 4\sqrt{2}$

center: $\frac{-2+6}{2}, \frac{-5+3}{2} \Rightarrow (2,-1)$

$$\boxed{(x-2)^2 + (y+1)^2 = 32}$$

OVER!

Directions: Convert each equation to standard form, and give the coordinates of the center and the radius.

7. $x^2 + y^2 + 8x - 6y = 0$

$x^2 + 8x + y^2 - 6y = 0$

$(x^2 + 8x + \underline{16}) + (y^2 - 6y + \underline{9}) = 0 + \underline{16} + \underline{9}$

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

center: $(-4, 3)$, $r = 5$

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

$x^2 + 4x + y^2 = 8$

$(x^2 + 4x + \underline{4}) + y^2 = 8 + \underline{4}$

$(x+2)^2 + y^2 = 12$

center: $(-2, 0)$, $r = 2\sqrt{3}$

9. $x^2 + y^2 - 4x + 8y - 5 = 0$

$x^2 - 4x + y^2 + 8y = 5$

$(x^2 - 4x + \underline{4}) + (y^2 + 8y + \underline{16}) = 5 + \underline{4} + \underline{16}$

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

center: $(2, -4)$, $r = 5$

10. $3x^2 + 3y^2 + 12x - 6y + 9 = 0$

$\frac{3(x^2 + y^2 + 4x - 2y + 3)}{3} = \frac{0}{3}$

$(x^2 + 4x + \underline{4}) + (y^2 - 2y + \underline{1}) = -3 + \underline{4} + \underline{1}$

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

center: $(-2, 1)$, $r = \sqrt{2}$