9.9 HW Standard Form of a Circle

Name: __Key__

Directions: Write the equation in standard form.

1) $x^2 + y^2 + 12x - 6y - 3 = 0$

$$(x+6)^2 + (y-3)^2 = 48$$

2) $x^2 + y^2 + 7x - 15y - 40 = 0$

$$\left(x+\tfrac{7}{2}\right)^2 + \left(y-\tfrac{15}{2}\right)^2 = 108.5$$

3) $x^2 + y^2 + 30x - 30y = 0$

$$(x+15)^2 + (y-15)^2 = 450$$

4) $x^2 + y^2 + 18x - 27y + 2 = 0$

$$(x+9)^2 + \left(y-\tfrac{27}{2}\right)^2 = 261.25$$

5) $3x^2 + 3y^2 + 27x - 24y + 12 = 0$

$$\left(x+\tfrac{9}{2}\right)^2 + (y-4)^2 = 32.25$$

6) $x^2 + y^2 + 7x - 16y + 8 = 0$

$$\left(x+\tfrac{7}{2}\right)^2 + (y-8)^2 = 68.25$$

Directions: Find the center and radius of the circle.

7) $x^2 + y^2 - 24y + 63 = 0$
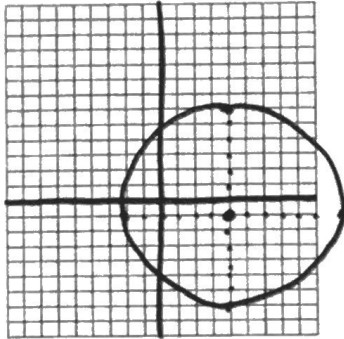
c: $(0, 12)$

r: 9

8) $x^2 + y^2 + 10x - 12y - 3 = 0$
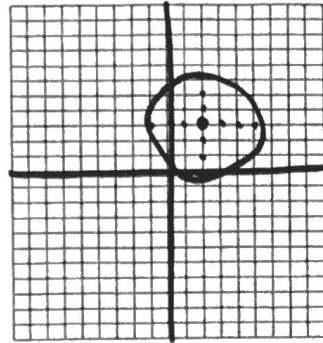
c: $(-5, 6)$

r: 8

Directions: Graph the circle.

9) $x^2 + y^2 - 8x + 2y - 19 = 0$

$c: (4, -1) \quad r: 6$

10) $x^2 + y^2 - 4x - 6y + 4 = 0$

$c: (2, 3) \quad r: 3$

Directions: Complete all questions.
1) Find the equation in standard form.
2) Find the radius.
3) Find the exact area of the circle.

11) $x^2 + y^2 + 8x - 4y + 4 = 0$

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

2) $r = 4$

3) $a = 16\pi$

12) $x^2 + y^2 = 25$

1) $x^2 + y^2 = 25$

2) $r = 5$

3) $a = 25\pi$

Directions: Complete all questions.
1) Find the equation in standard form.
2) Find the radius.
3) Find the exact volume of the cylinder if the circle is pulled 10 units through space (at a right angle).

13) $x^2 + y^2 - 12x + 27 = 0$

1) $(x-6)^2 + y^2 = 9$

2) $r = 3$

3) $V = \pi r^2 \cdot h$
$V = \pi(3^2)(10) = 90\pi$

14) $x^2 + y^2 - 18x + 10y + 94 = 0$

1) $(x-9)^2 + (y+5)^2 = 12$

2) $r = \sqrt{12} \rightarrow 2\sqrt{3}$

3) $V = \pi r^2 \cdot h$
$V = \pi(2\sqrt{3}^2) \cdot \underset{(10)}{\cancel{6}} = 120\pi$