NAME _____ DATE _____

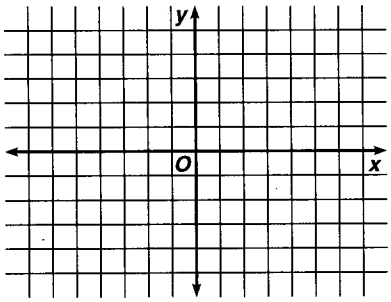
10-1

Practice Worksheet

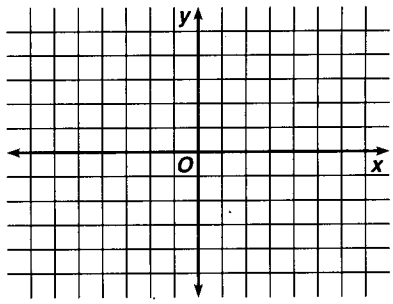
The Circle

Write the standard form of each equation. Then graph the equation

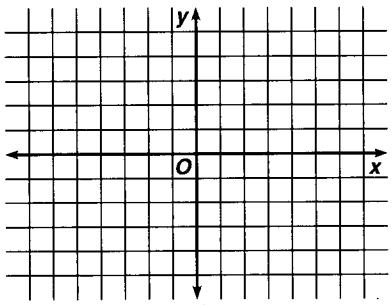
1. $x^2 + y^2 - 2y - 15 = 0$



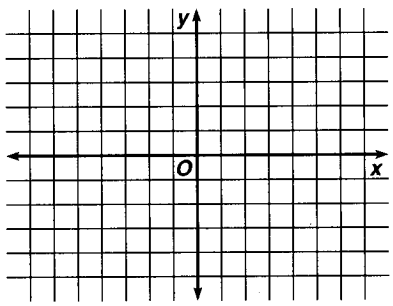
2. $x^2 + 4x + y^2 = 0$



3. $x^2 + y^2 - 8x - 6y + 21 = 0$



4. $4x^2 + 4y^2 - 16x - 8y - 5 = 0$



Write the standard form of the equation of the circle that passes through the points with the given coordinates. Then identify the center and the radius of the circle.

5. (–3, –2), (–2, –3), (–4, –3)

6. (0, –1), (2, –3), (4, –1)

7. (1, –1), (5, 3), (–3, 3)

8. (–1, 0), (2, 3), (–1, 6)

9. Write the equation of the circle that passes through (–1, 3) and has its center at (2, 4).

NAME _____ DATE _____

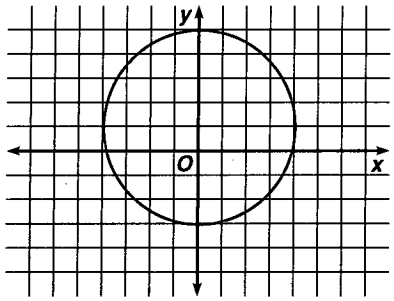
10-1

Practice Worksheet

The Circle

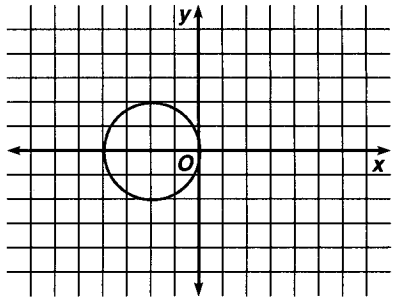
Write the standard form of each equation. Then graph the equation

1. $x^2 + y^2 - 2y - 15 = 0$



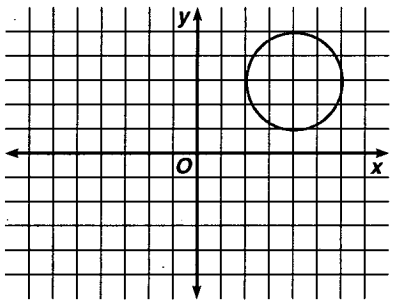
$x^2 + (y - 1)^2 = 16$

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



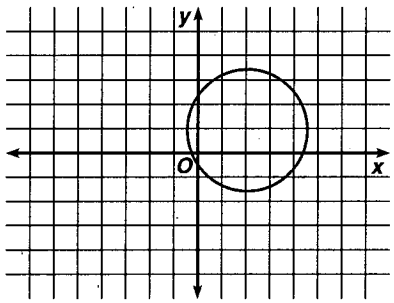
$(x + 2)^2 + y^2 = 4$

3. $x^2 + y^2 - 8x - 6y + 21 = 0$



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

4. $4x^2 + 4y^2 - 16x - 8y - 5 = 0$



$(x + 2)^2 + (y - 1)^2 = \frac{25}{4}$

Write the standard form of the equation of the circle that passes through the points with the given coordinates. Then identify the center and the radius of the circle.

5. (–3, –2), (–2, –3), (–4, –3)

$(x + 3)^2 + (y + 3)^2 = 1$; (–3, –3); 1

6. (0, –1), (2, –3), (4, –1)

$(x - 2)^2 + (y + 1)^2 = 4$; (2, –1); 2

7. (1, –1), (5, 3), (–3, 3)

$(x - 1)^2 + (y - 3)^2 = 16$; (1, 3); 4

8. (–1, 0), (2, 3), (–1, 6)

$(x + 1)^2 + (y - 3)^2 = 9$; (–1, 3); 3

9. Write the equation of the circle that passes through (–1, 3) and has its center at (2, 4).

$(x - 2)^2 + (y - 4)^2 = 10$

NAME _____ DATE _____

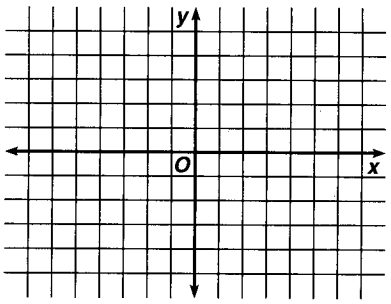
10-3

Practice Worksheet

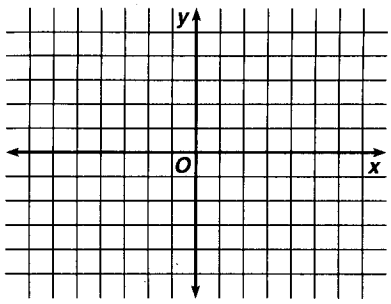
The Ellipse

For each equation, find the coordinates of the center, foci, and vertices of the ellipse. Then graph the equation.

1. $4x^2 + y^2 - 32x + 4y + 64 = 0$



2. $4x^2 + 9y^2 - 8x - 36y + 4 = 0$



Write the equation of the ellipse that meets each set of conditions.

3. The foci are at (–2, 1) and (–2, –7), and $a = 5$.

4. The length of the semi-major axis is 6 units, and the foci are at (0,2) and (8, 2).

5. The center is at (1, 3), one vertex is at (1, 8), and $\frac{c}{a} = \frac{4}{5}$.

State whether the graph of each equation is a circle, parabola, or ellipse. Justify your answer.

6. $x^2 + 4y^2 - 2x - 16y + 1 = 0$

7. $x^2 + 4y - 16 = 0$

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

9. $4x^2 + 4y^2 - 20x - 24 = 0$

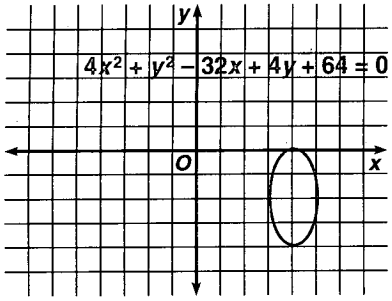
NAME _____ DATE _____

10-3 **Practice Worksheet**

The Ellipse

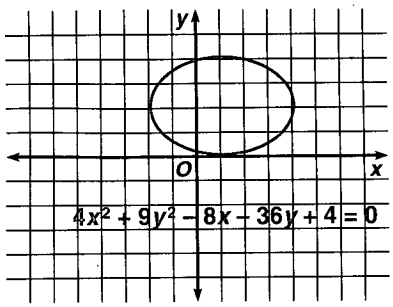
For each equation, find the coordinates of the center, foci, and vertices of the ellipse. Then graph the equation.

1. $4x^2 + y^2 - 32x + 4y + 64 = 0$



center: (4, –2);
foci: $(4, -2 \pm \sqrt{3})$;
vertices: (4, 0), (4, –4), (3, –2), (5, –2)

2. $4x^2 + 9y^2 - 8x - 36y + 4 = 0$



center: (1, 2);
foci: $(1 \pm \sqrt{5}, 2)$;
vertices: (–2, 2), (1, 4), (4, 2), (1, 0)

Write the equation of the ellipse that meets each set of conditions.

3. The foci are at (–2, 1) and (–2, –7), and $a = 5$.

$$\frac{(y+3)^2}{25} + \frac{(x+2)^2}{9} = 1$$

4. The length of the semi-major axis is 6 units, and the foci are at (0,2) and (8, 2).

$$\frac{(x-4)^2}{36} + \frac{(y-2)^2}{20} = 1$$

5. The center is at (1, 3), one vertex is at (1, 8), and $\frac{c}{a} = \frac{4}{5}$.

$$\frac{(y-3)^2}{25} + \frac{(x-1)^2}{9} = 1$$

State whether the graph of each equation is a circle, parabola, or ellipse. Justify your answer.

6. $x^2 + 4y^2 - 2x - 16y + 1 = 0$

ellipse; $\frac{(x-1)^2}{16} + \frac{(y-2)^2}{4} = 1$

7. $x^2 + 4y - 16 = 0$

parabola; $x^2 = 4(-1)(y - 4)$

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

circle; $(x + 3)^2 + (y + 1)^2 = 3$

9. $4x^2 + 4y^2 - 20x - 24 = 0$

circle; $\left(x - \frac{5}{2}\right)^2 + y^2 = \frac{49}{4}$