

Name: _____

Quadratic Formula Quiz

Solve for the roots by factoring the quadratic equation.

1. $x^2 - x - 6$

2. $x^2 + 6x + 8$

3. $x^2 - 7x - 8$

4. $x^2 + 7x - 44$

5. $x^2 - 17x + 72$

6. $x^2 + 5x + 4$

Solve for the roots using the quadratic equation. $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

7. $4x^2 + 4x + 1 = 0$

8. $5y^2 - 8y + 1 = 0$

9. $2x^2 - 3x - 5 = 0$

10. $x^2 - 12x - 28$

11. $x^2 - 4x - 5$

Determine the nature of the roots of the quadratic equation. Use : $b^2 - 4ac$

12. $x^2 - 8x + 16 = 0$

13. $-2x^2 + 14x - 10 = 0$

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Solve the equation to find the vertex. Use: $\frac{-b}{2a}$

14. $x^2 - 4x + 6$

15. $2x^2 + 7x - 1$

Name: _____

Quadratic Formula Quiz

Solve for the roots by factoring the quadratic equation.

1. $x^2 - x - 42$

2. $x^2 + 16x - 80$

3. $x^2 + 2x - 24$

4. $x^2 + 7x - 44$

5. $x^2 - 17x + 72$

6. $x^2 + 3x - 40$

Solve for the roots using the quadratic equation. $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

7. $3y^2 - 2y - 2 = 0$

8. $5y^2 - 8y + 1 = 0$

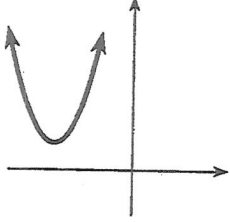
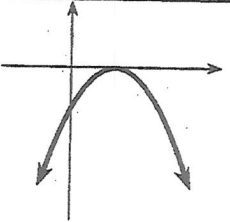
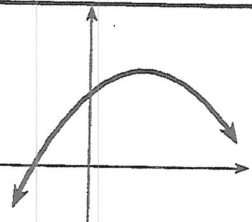
9. $9x^2 - 24x + 16 = 0$

5-2D Practice

Name _____

Date _____

Complete the table.

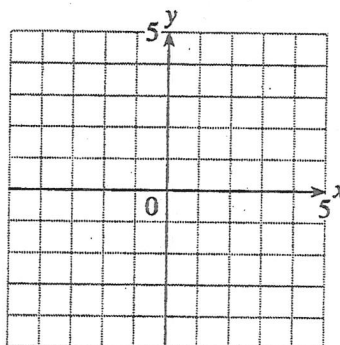
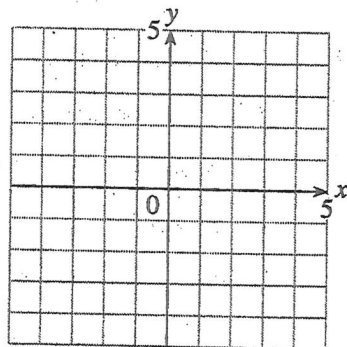
	1.	2.	3.
Quadratic Function			
Number of zeros			
Is the Discriminant $b^2 - 4ac = 0, < 0, \text{ or } > 0?$			

Without solving, determine the nature of the roots of each quadratic equation.

4. $3x^2 + 5x - 4 = 0$ _____
5. $x^2 + 6x + 9 = 0$ _____
6. $2v^2 - 3v + 2 = 0$ _____
7. $z^2 + 8z - 6 = 0$ _____
8. $-3x^2 + 2x + 7 = 0$ _____
9. $2x^2 - 5x + 4 = 0$ _____

Find the number of x -intercepts of each function.

10. $y = 3x^2 + 5x - 2$ _____
11. $y = 3.7x^2 - 2.8x + 0.52$ _____
12. $y = 3.7x^2 - 2.8x + 0.54$ _____
13. $y = 2.56x^2 - 8.64x + 7.29$ _____
14. $f(x) = 5x^2 + 2x - 1$ _____
15. $F(x) = 7x^2 + 6x + 1$ _____
16. Sketch the graph of a quadratic function that opens downward and whose discriminant is negative.
17. Sketch the graph of a quadratic function whose discriminant is positive and whose vertex is in the third quadrant.



Use the discriminant to see if the following has at least one real-number answer. If it does not, say so and explain how you can tell. If it does, find the solution.

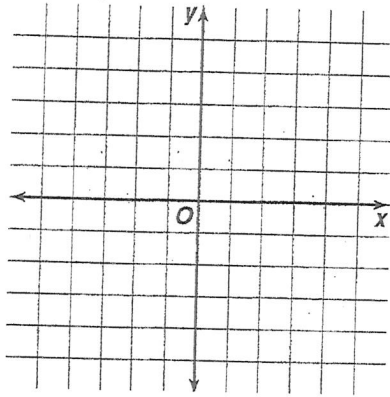
18. A ball is tossed upward from a height of 1.5 m with an initial vertical velocity of 3 m/sec. At what time(s) will the ball attain a height of 2 m? _____

Practice

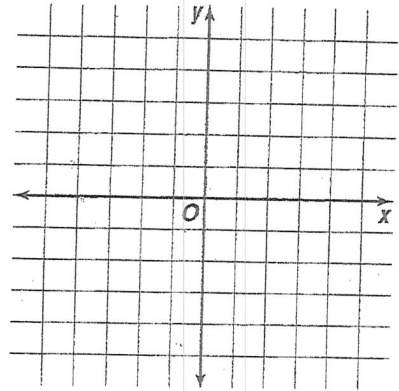
Hyperbolas

Find the coordinates of the vertices and foci and the slopes of the asymptotes for each hyperbola whose equation is given. Then draw the graph.

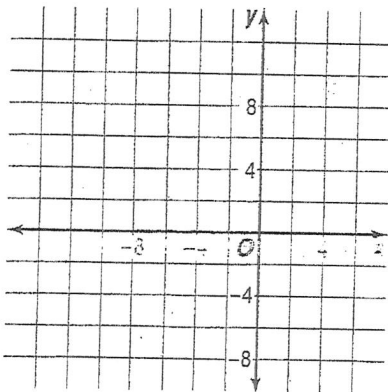
1. $\frac{y^2}{9} - \frac{x^2}{36} = 1$



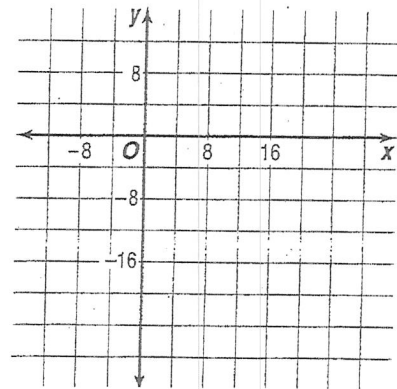
2. $y^2 - 4x^2 = 16$



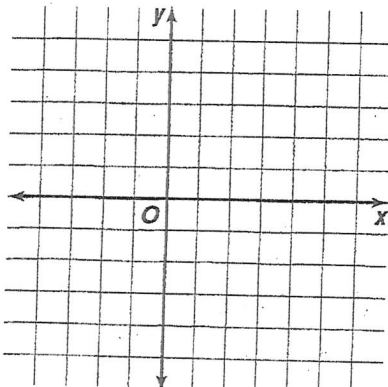
3. $\frac{(y-2)^2}{9} - \frac{(x+3)^2}{25} = 1$



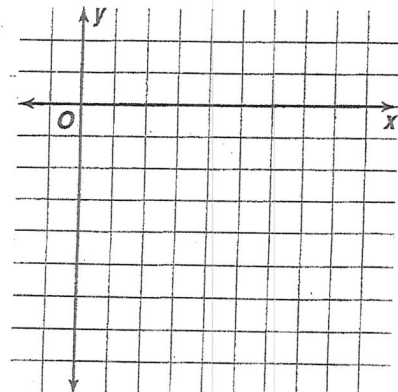
4. $\frac{(x-1)^2}{64} - \frac{(y+4)^2}{16} = 1$



5. $4y^2 - x^2 - 16y + 2x + 11 = 0$



6. $3y^2 - 4x^2 + 12y + 24x = 36$

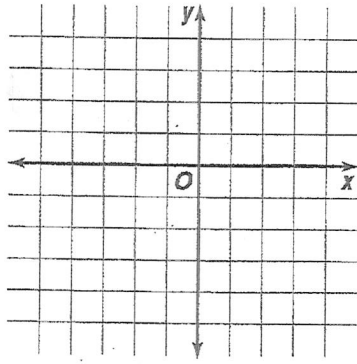


Practice

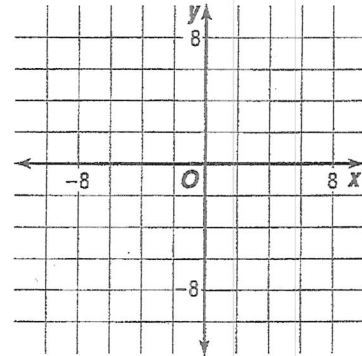
Ellipses

Find the coordinates of the center and foci, and lengths of the major and minor axes for each ellipse whose equation is given. Then draw the graph.

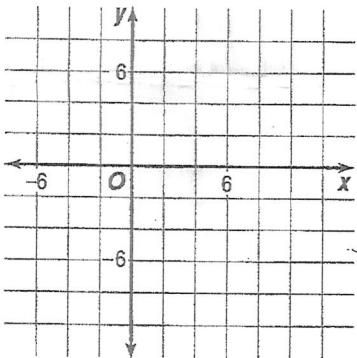
1. $\frac{x^2}{9} + \frac{y^2}{16} = 1$ $(0, 0)$



2. $16x^2 + y^2 = 64$

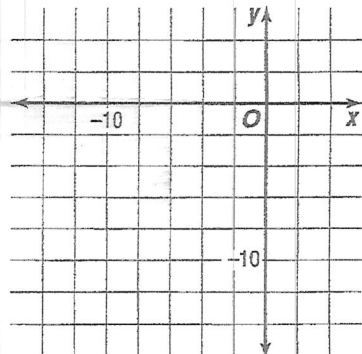


3. $\frac{(x-3)^2}{1} + \frac{(y-1)^2}{36} = 1$



4. $\frac{(x+4)^2}{49} + \frac{(y+3)^2}{25} = 1$

$(-4, -3);$



Write the equation for each ellipse described below.

5. The foci are at $(4, 0)$ and $(-4, 0)$. Then endpoints of the minor axis are at $(0, 2)$ and $(0, -2)$.
6. The center has coordinates $(2, -4)$. The minor axis is parallel to the x -axis with a length of 6. The major axis has a length of 10.

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Conic Sections Quiz

State whether the graph of each equation is a circle, ellipse, parabola, or a hyperbola. Determine the center and/or vertices of each.

1. $\frac{x^2}{25} + \frac{y^2}{16} = 1$

2. $x^2 + y^2 = 36$

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

4. $\frac{x^2}{9} - y^2 = 1$

5. $\frac{(x-3)^2}{4} + \frac{(y-4)^2}{9} = 1$

6. Write an equation of a circle with center at (4, -2) and radius of 5.

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

Extra Credit

Write an equation for an ellipse with vertices (-4, 0) and (4,0) and foci of (0,-3) and (0, 3).

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Conic Sections Review Sheet

State whether the graph of each equation is a circle, ellipse, parabola, or a hyperbola. Determine the center and/or vertices of each.

1. $\frac{x^2}{16} + \frac{y^2}{49} = 1$

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

3. $x^2 + y^2 = 49$

4. $\frac{y^2}{36} - \frac{x^2}{25} = 1$

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

6. $16x^2 - 9y^2 = 144$

7. $25x^2 + 9y^2 = 225$

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

9. $\frac{x^2}{4} + y^2 = 1$

10. Write an equation of a circle with center at (2, -3) and radius of 6.

11. Write an equation for an ellipse with vertices (-4, 0) and (4, 0) and foci of (-2, 0) and (2, 0).

12. Write an equation of a hyperbola with center at the origin and vertex at (0, 3) and an asymptote with the equation of $y = x$.

Practice

Student Edition
Pages 556–561

Direct, Inverse, and Joint Variation

Write an equation for each statement. Then solve the equation.

1. Find y when $x = 6$, if y varies directly as x and $y = 8$ when $x = 2$.
2. Find y when $x = 1.5$, if y varies directly as x and $y = -16$ when $x = 6$.
3. Find y when $x = 4$, if y varies directly as x and $y = 7$ when $x = 1.5$.
4. Find y when $x = 5$, if y varies directly as x and $y = 5$ when $x = 3.5$.
5. Find x when $y = 3$, if y varies inversely as x and $x = 4$, when $y = 16$.
6. Find x when $y = 5$, if y varies inversely as x and $x = 6$ when $y = -18$.
7. Find y when $x = 2\frac{1}{2}$, if y varies inversely as x and $x = 5$ when $y = 3$.
8. Find y when $x = 10$, if y varies inversely as x and $x = 7.5$ when $y = 6$.
9. Find y when $x = 4$ and $z = 15$, if y varies jointly as x and z and $y = 5$ when $z = 8$ and $x = 10$.
10. Find y when $x = 12$ and $z = 2$, if y varies jointly as x and z and $y = 24$ when $z = 2$ and $x = 1$.
11. Find y when $x = 6$ and $z = 8$, if y varies jointly as x and z and $y = 60$ when $x = 3$ and $z = 4$.
12. Find y when $x = 4$ and $z = -1$, if y varies jointly as x and z and $y = 12$ when $x = -2$ and $z = 3$.