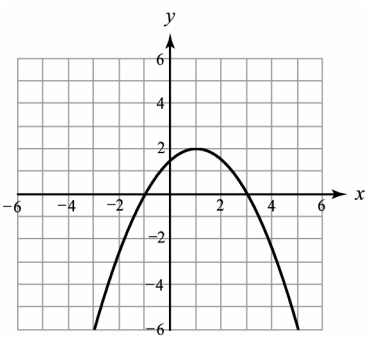
Chapter 8, Test Form A **Name:**

1. For the quadratic graphed function below, identify the vertex and the axis of symmetry. 1. _____



2. Find the vertex and axis of symmetry for the graph of $f(x) = -\frac{1}{2}x^2 + 2x - 5$. 2. _____

   Evaluate $f(-2)$. _____

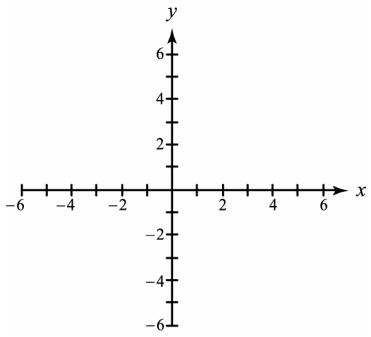
3. Find the minimum *y*-value located on the graph of $y = x^2 - 2x + 6$. 3. _____

4. Find the exact value for the constant *a* so that $f(x) = ax^2 - 3$ models the data in the table. 4. _____

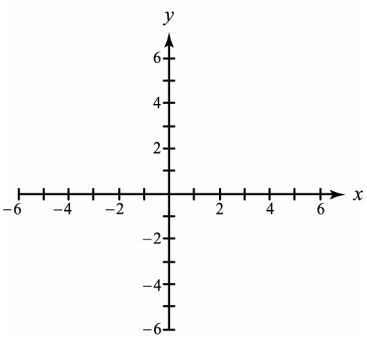
x	−2	0	2	4
$f(x)$	−1	−3	−1	5

In #5 and #6, compare the graph of f to the graph of $y = x^2$.

5. Graph $f(x) = -x^2 - 4$. 5.



6. Graph $f(x) = -2(x-1)^2 + 4$.

6. 

7. Write $y = x^2 + 4x + 1$ in vertex form.

7. _____

Identify the vertex and axis of symmetry.

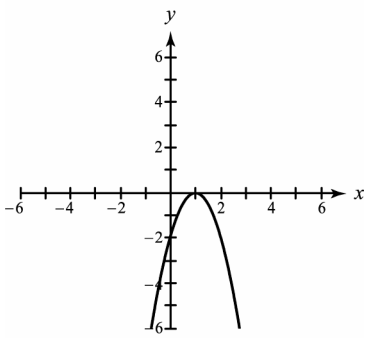
_____

8. Use the graph of $f(x) = ax^2 + bx + c$ to solve $ax^2 + bx + c = 0$.

8. _____

Then evaluate $f(2)$.

_____



9. Solve the quadratic equation $3x^2 - 5x - 12 = 0$.

9. _____

10. Solve the quadratic equation $2x^2 = 12 - x^2$.

10. _____

11. Solve $x^2 + 3x = 2$ by completing the square.

11. _____

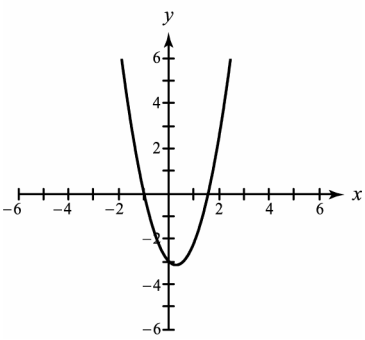
12. Solve $x(-3x + 4) = 2$ by using the quadratic formula.

12. _____

13. Solve $2x^2 = x + 4$ by using the quadratic formula.

13. _____

14. A graph of $y = ax^2 + bx + c$ is shown.



(a) State whether $a > 0$ or $a < 0$. 14. (a)_____

(b) Solve $ax^2 + bx + c = 0$. (b)_____

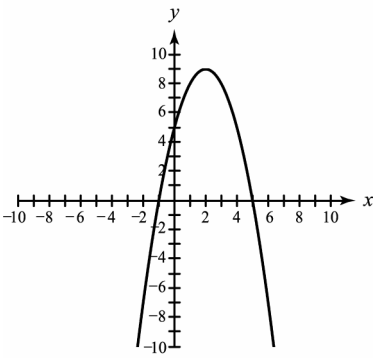
(c) Determine whether the discriminant is positive, negative, or zero. (c)_____

15. Complete the following for $\frac{1}{2}x^2 + 3x + \frac{9}{2} = 0$.

(a) Evaluate the discriminant. 15. (a)_____

(b) How many real solutions are there? (b)_____

16. The graph of $y = ax^2 + bx + c$ is shown. Solve each equation or inequality.



(a) $ax^2 + bx + c = 0$ 16. (a)_____

(b) $ax^2 + bx + c < 0$ (b)_____

(c) $ax^2 + bx + c \geq 0$ (c)_____

17. Solve the quadratic equation in part (a). Use the result to solve the inequalities in parts (b) and (c) and write your answers in interval notation.

(a) $2x^2 - 5x - 12 = 0$ 17. (a)_____

(b) $2x^2 - 5x - 12 \le 0$ (b)_____

(c) $2x^2 - 5x - 12 > 0$ (c)_____

18. Solve $2x^2 - 9x < 0$. Write your answer in interval notation. 18. _____

19. Solve $x^4 + x^2 - 20 = 0$. Find all real solutions. 19. _____

20. Solve $2x^2 + x + 4 = 0$. Find all complex solutions. 20. _____