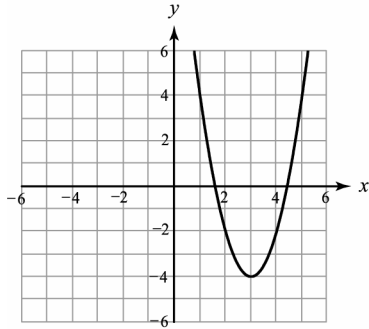


1. For the quadratic function graphed below, identify the vertex and the axis of symmetry. 1. _____



2. Find the vertex and axis of symmetry for the graph of $f(x) = \frac{1}{3}x^2 - 2x + 4$. 2. _____
Evaluate $f(6)$. _____

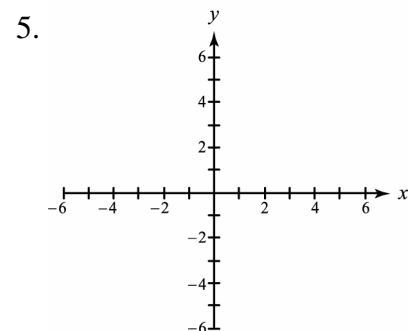
3. Find the maximum y-value located on the graph of $y = -x^2 - 4x + 5$. 3. _____

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

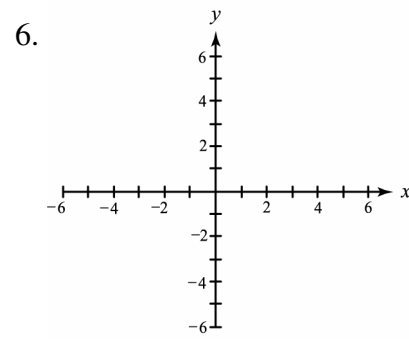
x	-6	-3	0	3
$f(x)$	-10	-1	2	-1

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

5. Graph $f(x) = 2(x+2)^2$.



6. Graph $f(x) = \frac{1}{2}(x-2)^2 - 3$.



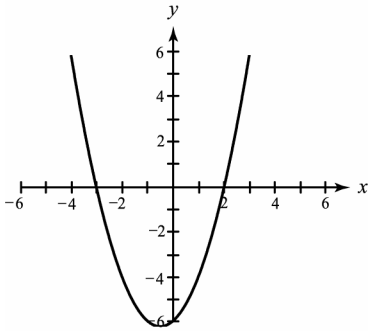
7. Write $y = x^2 - 2x + 5$ in vertex form.

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 $f(0)$.



9. Solve the quadratic equation $9x^2 - 6x - 3 = 0$.

9. _____

10. Solve the quadratic equation $3x^2 = 9 - x^2$.

10. _____

11. Solve $x^2 - 5x = -1$ by completing the square.

11. _____

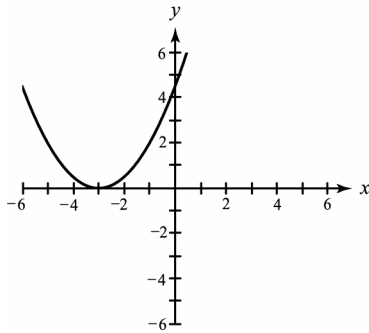
12. Solve $x(2x-1) = 4$ by using the quadratic formula.

12. _____

13. Solve $2x^2 = 6x - 3$ 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 $-2x^2 - 2x - 2 = 0$.

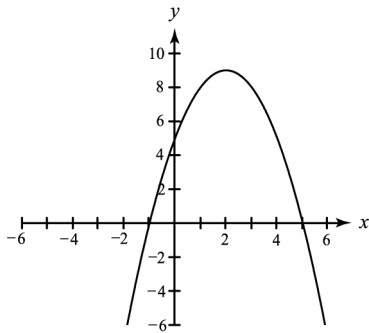
(a) Evaluate the discriminant.

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

(b) _____

(c) $ax^2 + bx + c \leq 0$

(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) $3x^2 - 11x - 4 = 0$

17. (a) _____

(b) $3x^2 - 11x - 4 < 0$

(b) _____

(c) $3x^2 - 11x - 4 \geq 0$

(c) _____

18. Solve $3x^2 + 12x \geq 0$. Write your answer in interval notation. 18. _____

19. Solve $x^6 - x^3 - 2 = 0$. Find all real solutions. 19. _____

20. Solve $3x^2 + 4x + 2 = 0$. Find all complex solutions. 20. _____