



8-1 Additional Practice

Key Features of a Quadratic Function

1. If the vertex of a parabola is $(0, 3)$, what is the axis of symmetry?
2. If the vertex of a parabola is $(0, -4)$, what is the axis of symmetry?

Compare the graphs of each group of functions and list them in order from widest to narrowest.

3. $y = -3x^2$, $y = -5x^2$, $y = -1x^2$
4. $y = 4x^2$, $y = -2x^2$, $y = -6x^2$

Determine whether the graph of each function opens upward or downward.

5. $y = -6x^2$
6. $y = 11x^2$
7. Over what interval is the function shown in the table increasing? Decreasing?

x	$y = 6x^2$	(x, y)
-2	24	$(-2, 24)$
-1	6	$(-1, 6)$
0	0	$(0, 0)$
1	6	$(1, 6)$
2	24	$(2, 24)$

8. How do the average rates of change for the functions $f(x) = 2x^2$ and $g(x) = 3x^2$ over the interval $-3 \leq x \leq 4$ compare?
9. Emma is choosing new tile for the floor in his dining room, which is in the shape of a square with side length x feet. The tile costs \$3.50 per square foot.
 - a. Write the function f for the cost of the flooring.
 - b. Determine the cost of the flooring if she decides on a dining room with side lengths of 10 ft.
 - c. Determine the cost of the flooring if she decides on a dining room with side lengths of 15 ft.