

Name: key

Unit 8: Graphing Quadratics Study Guide



1. Which of the following quadratic functions would have a graph open downward and shift up 4?

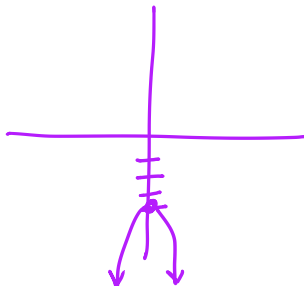
Make a sketch of the graph to the right.

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

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

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

d. $f(x) = 5x^2 + 4$



For #'s 2-3, draw an accurate graph (with at least five key points) and find the following:

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

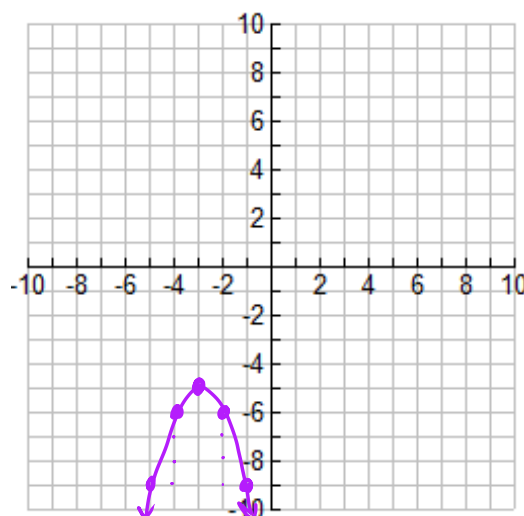
Axis of Symmetry: $x = -3$

Vertex: $(-3, -5)$ **MAX** or MIN

direction of graph: down \cap

range: $(-\infty, -5]$

End Behavior: $x \rightarrow -\infty, y \rightarrow -\infty$
 $x \rightarrow \infty, y \rightarrow -\infty$



3. $y = -2(x+4)^2 + 9$

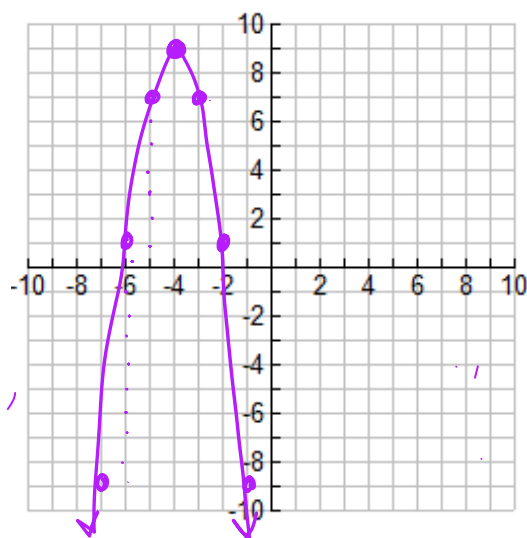
Axis of Symmetry: $x = -4$

Vertex: $(-4, 9)$ **MAX** or MIN

direction of graph: down

range: $(-\infty, 9]$

End Behavior: $x \rightarrow -\infty, y \rightarrow -\infty$
 $x \rightarrow \infty, y \rightarrow -\infty$



Name:

Describe the transformation(s) on each of the following functions compared to the parent function $y = x^2$.

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

- ① right 4
- ② vertical stretch
b.a.f. 2

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

- ① left 3
- ② reflect over x-axis
- ③ up 5

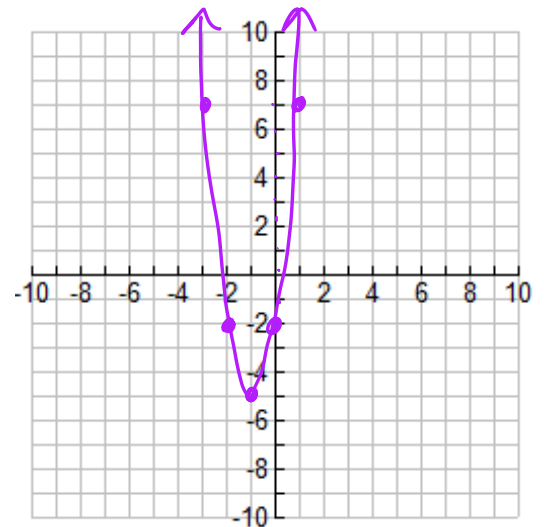
6. $h(x) = 6x^2 + 7$

- ① vertical stretch
b.a.f. 6
- ② up 7

For #'s 7-8, draw an accurate graph (with at least five key points) and find the following:

7. $y = 3x^2 + 6x - 2$

Axis of Symmetry: $x = -1$ $-\frac{b}{2a} = -1$
Vertex: $(-1, -5)$ MAX or MIN $3(-1)^2 + 6(-1) - 2$
y-intercept: $(0, -2)$ $3 - 6 - 2$
range: $[-5, \infty)$ $-3 - 2$
End Behavior: $x \rightarrow -\infty, y \rightarrow \infty$
 $x \rightarrow \infty, y \rightarrow \infty$



8. $y = -2x^2 + 4x + 3$

Axis of Symmetry: $x = 1$ $-\frac{b}{2a} = -\frac{4}{-4} = 1$
Vertex: $(1, 5)$ MAX or MIN $-2(1)^2 + 4(1) + 3$
y-intercept: $(0, 3)$ $-2 + 4 + 3$
range: $(-\infty, 5]$ $-2 + 7$
End Behavior: $x \rightarrow -\infty, y \rightarrow -\infty$
 $x \rightarrow \infty, y \rightarrow -\infty$

