Practice – Writing Quadratics Given a Point and a Vertex

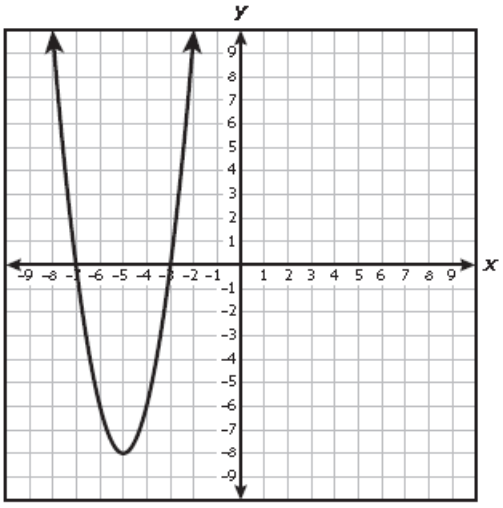
Find the quadratic function with the given vertex and point. Put your answer in vertex form.

1. A parabola with a vertex at (0, 0) and passing through the point (-2, 8).

2. A parabola with a vertex at (2, 0) and passing through the point (1, 3).

3. A parabola with a vertex at (-3, 0) and passing through the point (-5,-4).

4. A quadratic function is graphed on the grid below.



If this function is written in the form $y = a(x-h)^2 + k$, what is the value of a?

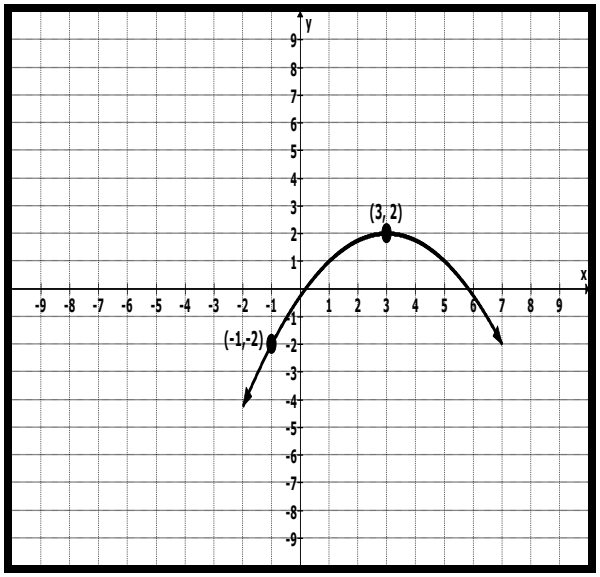
A. -3
B. -8
C. 5
D. 2

5. Which equation has the same graph as $2x^2 - 4x - y + 11 = 0$?

A. $y = (2x-1)^2 + 9$
B. $y = (2x-1)^2 + 13$
C. $y = 2(x-1)^2 + 9$
D. $y = 2(x-1)^2 + 13$

6. Your friend claims that because a quadratic function of the form $y = ax^2 + c$ opens downwared when $a<0$, its graph must cross the x-axis. Do you agree? If so, explain. If not, describe a situation in which the graph does not cross the x-axis.

7. A quadratic function is graphed below.



Which is the equation in vertex form?

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

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

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

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