

Writing Quadratic Equations in Vertex Form

Write a quadratic function in vertex form with the given vertex that passes through the given point.

1. Vertex: $(-2, -1)$ passes through the point $(-4, 3)$

$$y = (x + 2)^2 - 1$$

2. Vertex: $(2, 4)$ passes through the point $(3, 7)$

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

3. Vertex: $(3, 0)$ passes through the point $(5, 4)$

$$y = (x - 3)^2$$

4. Vertex: $(-4, 4)$ passes through the point $(-2, 0)$

$$y = 2(x + 4)^2 - 8$$

Rewrite the following functions from vertex form to standard form.

29.

$$f(x) = 4(x - 2)^2 + 16$$

30.

$$f(x) = -2(x - 6)^2 + 50$$

$$f(x) = -2x^2 + 24x - 22$$

$$f(x) = 3(x + 2)^2 - 9$$

$$f(x) = 3x^2 + 18x + 18$$

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



WRITE QUADRATIC EQUATIONS IN VERTEX FORM Worksheet

7. Vertex: $(-5, 2)$ passes through the point $(-3, 3)$

$$y = \frac{1}{2}(x + 5)^2 + 2$$

8. Vertex: $(-4, 2)$ passes through the point $(-2, -2)$

$$y = -1(x + 4)^2 + 2$$

$$y = 24x + 40$$

Write a quadratic function given the vertex and a point on the graph and write the equation from vertex to standard form.