

Quadratic Vertex Form

Standard Form: $f(x) = ax^2 + bx + c$ Vertex Form: $f(x) = a(x - h)^2 + k$

$$h = -\frac{b}{2a} \quad k = f(h)$$

Write each function in vertex form.

1. $f(x) = x^2 - 6x + 8$	2. $g(x) = x^2 + 5$
3. $w(x) = -x^2 - 4x$	4. $f(t) = t^2 - 8t + 12$

5. To avoid hitting a pile of rocks below, a cliff diver jumps out about. The equation $h = -12t^2 + 20$ describes her height h in feet, t seconds after jumping.
- How long does it take her to reach the highest point?
 - How high is it?
6. Jennifer, the architect, uses a parabolic arch for a feature in the skate park. In her plans, the bottom edge of the arch sits 1 yard above the ground and 2 yards from the top of the arch, which is positioned 3 yards above the ground. Write this function.

