1. Vertex form: \[ y - 2 = (x - 3)^2 \]
   Vertex: \((3, 2)\)
   Axis of symmetry: \(x = 3\)
   Opens... Up
   Compare to \(y = x^2\): Same
2. **Vertex form:** \( y - 3 = -3(x - 2)^2 \)
   - **Vertex:** \((2, 3)\)
   - **Axis of symmetry:** \(x = 2\)
   - **Opens:** Down
   - **Compare to \(y = x^2\):** Narrower
3. **Vertex form:** \( y - 1 = \frac{1}{2} (x - 2)^2 \)

   - **Vertex:** \((2, 1)\)
   - **Axis of symmetry:** \(x = 2\)
   - **Opens...** Up
   - **Compare to** \(y = x^2\): Wider
4. Vertex form: \( y + 2 = 2(x - 1)^2 \)
   - Vertex: \((1, -2)\)
   - Axis of symmetry: \(x = 1\)
   - Opens... Up
   - Compare to \(y = x^2\): Narrower
5. Vertex form: $y - 3 = -(x + 4)^2$
   Vertex: $(-4, 3)$
   Axis of symmetry: $x = -4$
   Opens... Down
   Compare to $y = x^2$: Same
6. Vertex form: \( y + 2 = \frac{1}{2}(x + 3)^2 \)
   Vertex: \((-3, -2)\)
   Axis of symmetry: \(x = -3\)
   Opens... Up
   Compare to \(y = x^2\): Wider

7. None

8. \(x = 1, 3\)

9. \(x = -4 \pm \sqrt{3}\)