

Algebra II Quadratic Mastery Assessment (Test)

Name: _____

Date: _____

Direct Practice

1. Factor the expression: $x^2 + 5x + 6$

Direct Practice

2. Factor completely: $6x^2 + 7x - 3$

Direct Practice

3. Factor completely: $2x^4 - 18x^2$

Direct Practice

4. Solve the quadratic equation: $2x^2 - 3x - 2 = 0$

Direct Practice

5. For the quadratic function $y = -x^2 + 4x + 5$, find the vertex and axis of symmetry, and state whether it has a maximum or minimum value and what that value is.

Direct Practice

6. Find all real values of k such that the equation $x^2 + kx + 9 = 0$ has exactly one real solution.

Direct Practice

7. Describe the transformation from $f(x) = x^2$ to $g(x) = (x - 3)^2 + 2$.

Direct Practice

8. Let $f(x) = x^2$. Write a formula for the function obtained by applying a horizontal stretch by factor 3 and then shifting down 4 units.

Direct Practice

9. Starting with $f(x) = x^2$, write an equation for the function obtained by reflecting over the x -axis, shifting right 2 units, applying a vertical stretch by factor 3, and then shifting up 5 units.

Direct Practice

10. Given $y = (x - 4)^2 - 9$, choose the correct set of features: zeros (roots), vertex, and axis of symmetry.