

Name: _____ Date: _____

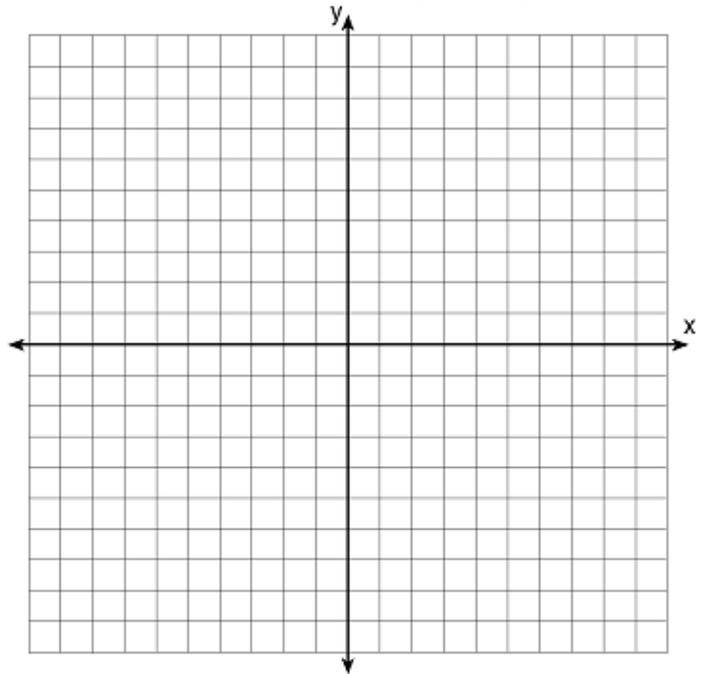
Intermediate Algebra

8.4 Finding the Roots of Functions

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

Table of values

Graph and Draw the axis of symmetry



Number of roots = _____

Identify the Roots

Factor and Solve: $x^2 + 2x + 1 = 0$

Turning point / Vertex

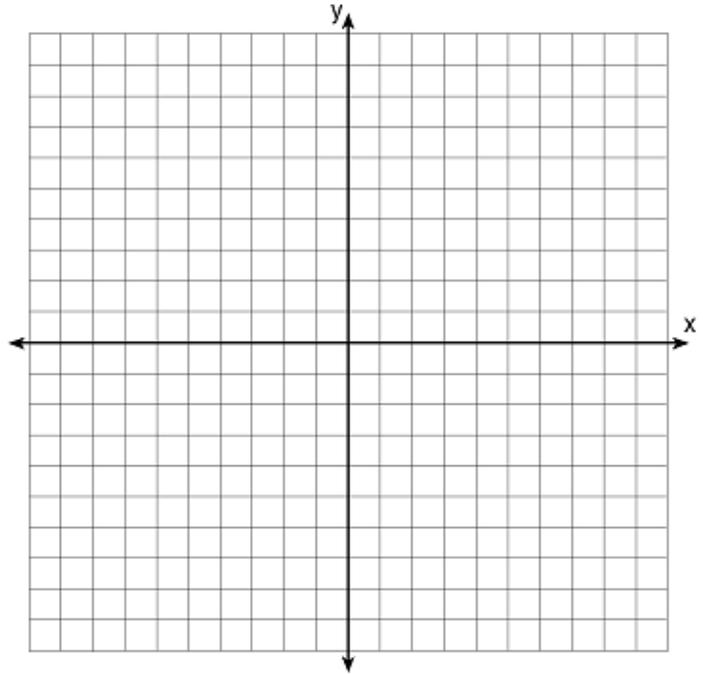
Minimum / Maximum

Calculate the Axis of Symmetry
(a = _____, b = _____, c = _____)

2) $y = x^2 - 4$

Table of values

Graph and Draw the axis of symmetry



Number of roots = _____

Identify the Roots

Factor and Solve: $-x^2 + 5x + 6 = 0$

Turning point / Vertex

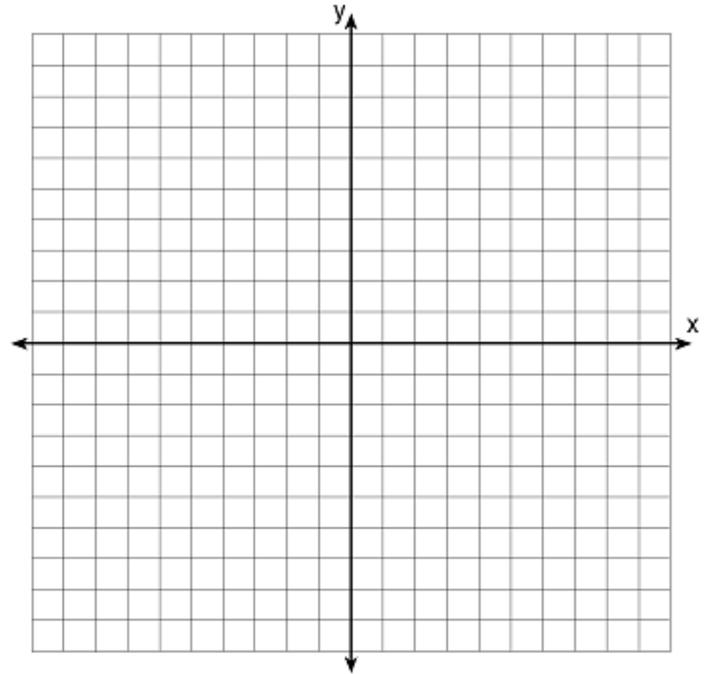
Minimum / Maximum

Calculate the Axis of Symmetry
(a = _____, b = _____, c = _____)

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

Table of values

Graph and Draw the axis of symmetry



Number of roots = _____

Identify the Roots

Factor and Solve: $-x^2 - 2x + 3 = 0$

Turning point / Vertex

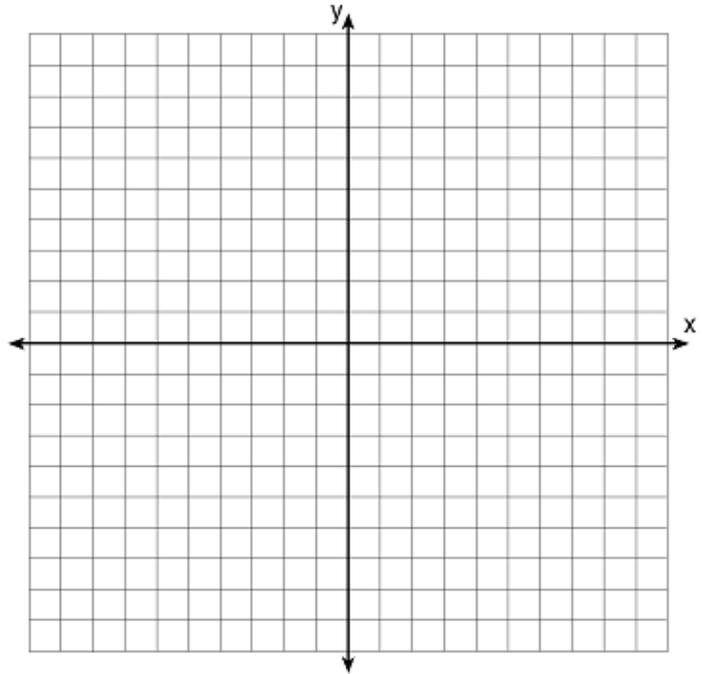
Minimum / Maximum

Calculate the Axis of Symmetry
(a = _____, b = _____, c = _____)

4) $y = x^2 + 4x + 5$

Table of values

Graph and Draw the axis of symmetry



Number of roots = _____

Identify the Roots

Factor and Solve: $x^2 + 4x + 5 = 0$

Turning point / Vertex

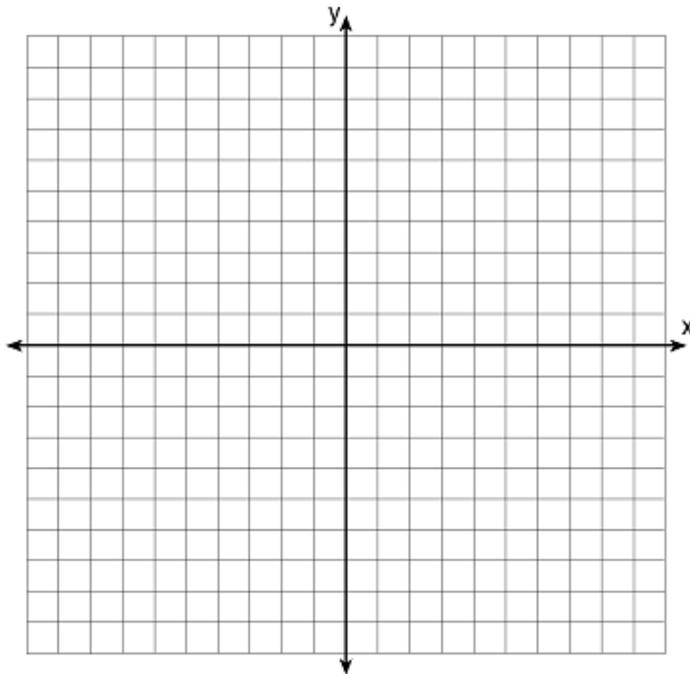
Minimum / Maximum

Calculate the Axis of Symmetry
(a = _____, b = _____, c = _____)

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

Table of values (using the domain indicated)

Graph and Draw the axis of symmetry



Number of roots = _____

Identify the Roots

Factor and Solve: $x^2 - 2x - 3 = 0$

Turning point / Vertex

Minimum / Maximum

Calculate the Axis of Symmetry
(a = _____, b = _____, c=_____)

Find the Vertex and Axis of Symmetry without graphing.

1. Make sure the quadratic function is in standard form: $y = ax^2 + bx + c$.
2. Identify the numeric values of a, b, and c
3. The axis of symmetry can be found using the formula $x = \frac{-b}{2a}$ and the values of a and b from above.
4. Substitute the x value from step 2 into the quadratic function to solve for y.
5. Combine the value of x and y into an ordered pair to find the vertex.

Find the axis of symmetry and the vertex for these quadratic functions without graphing or using the calculator:

6) $y = -2x^2 + 4x - 9$

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____

7) $y = x^2 - 10$

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____

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

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____

9) $y + 2x^2 = 8x - 8$

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____

10) $y = 2x^2 + 8x$

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____

11) $y = x^2 + 3$

a = ____ b = ____ c = ____

Axis of symmetry: _____ Vertex: _____