

Name _____
Trigonometry & Precalculus

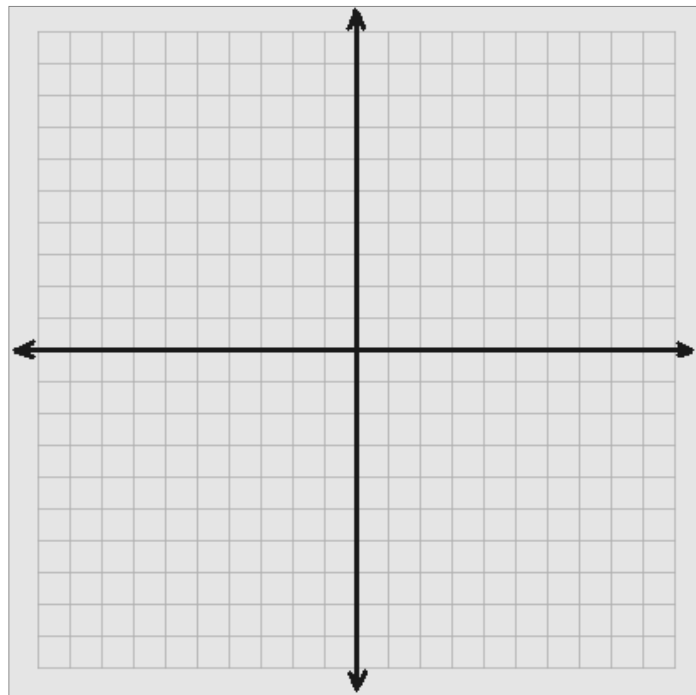
Date _____
Mr. Lupinacci

PRACTICE

Intersection of lines and parabolas

1. For the following quadratic: $y = x^2 - 3x - 4$

- a) Find the vertex.
- b) State the axis of symmetry.
- c) Find the x-intercepts.
- d) Find the y-intercept.
- e) Find the y mirror.



- 2. Plot all of the points you found above, and construct the parabola.
- 3. On the same set of coordinate axes above, **graph the line:** $y = -2x + 2$.
- 4. **Using the algebraic method**, find the point(s) of intersection of the parabola that you graphed above with equation $y = x^2 - 3x - 4$ and the line $y = -2x + 2$.

5. For the following quadratic: $y = x^2 + 7x + 10$

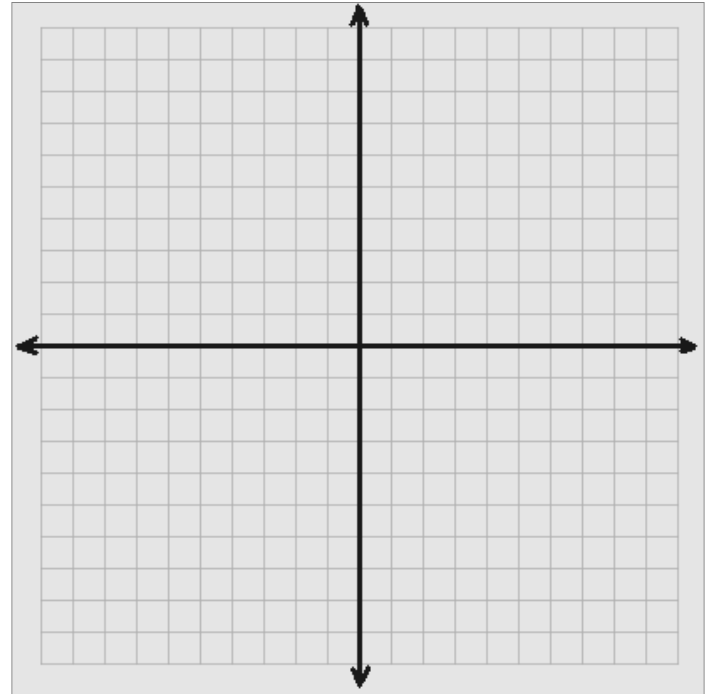
a) Find the vertex.

b) State the axis of symmetry.

c) Find the x-intercepts.

d) Find the y-intercept.

e) Find the y mirror.



6. **Plot all of the points** you found above, and construct the parabola.

7. On the same set of coordinate axes above, **graph the line:** $y = -x + 1$.

8. **Using the algebraic method**, find the point(s) of intersection of the parabola that you graphed above with equation $y = x^2 + 7x + 10$ and the line $y = -x + 1$.

9. For the following quadratic: $y = 3x^2 + 8x - 4$

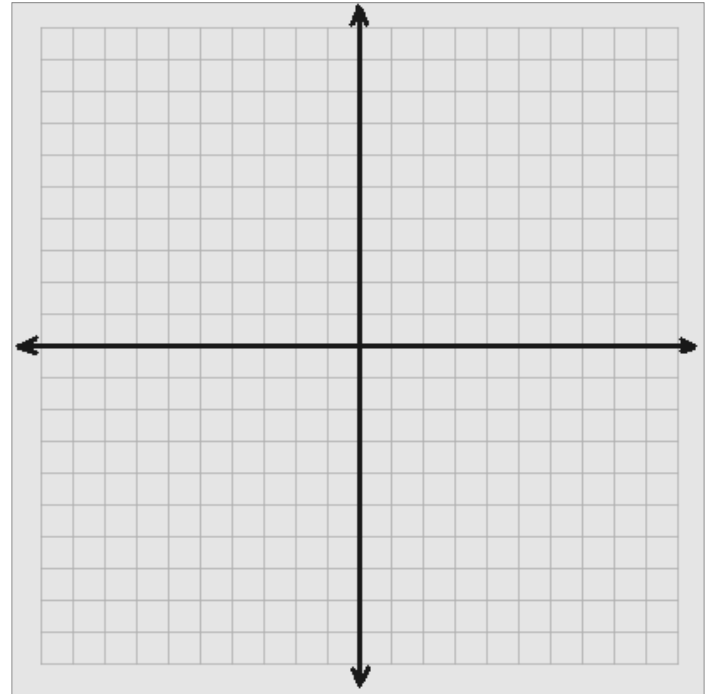
a) Find the vertex.

b) State the axis of symmetry.

c) Find the x-intercepts.

d) Find the y-intercept.

e) Find the y mirror.



10. Plot all of the points you found above, and construct the parabola.

11. On the same set of coordinate axes above, graph the line: $y = 2x + 3$.

12. Using the algebraic method, find the point(s) of intersection of the parabola that you graphed above.