Mastery Algebra 1 **Chapter 9 Review #3** Name _____

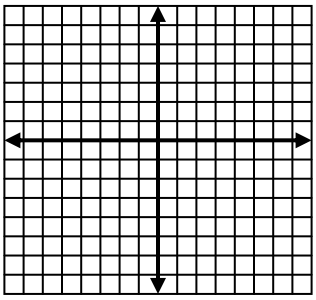
1. Order each group of quadratic functions from widest to narrowest.

a) $f(x)=3x^2;\ f(x)=\frac{2}{3}x^2;\ f(x)=\frac{5}{3}x^2$

b) $g(y)=-7y^2;\ g(y)=4y^2;\ g(y)=-\frac{2}{5}y^2$

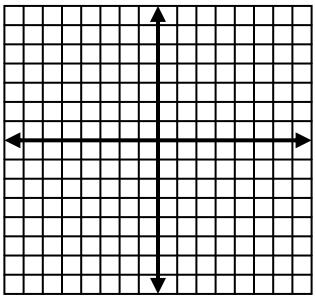
2. Graph each function. State the vertex and axis of symmetry.

a) $f(x)=-x^2+2$



Vertex: (,) Axis of symmetry:

b) $g(x)=x^2-2x-8$



Vertex: (,) Axis of symmetry

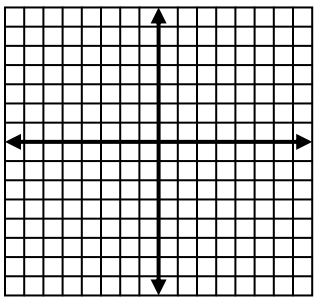
3. Simplify.

a) $\sqrt{975}$

b) $\sqrt{2352}$

4. **Solve** by graphing.

$x^2-x-6=0$



x = _____

5. **Solve** by factoring.

$2x^2+x=6$

x = _____

Scrambled answers: $28\sqrt{3}, x=0, \left[\frac{2}{3}x^2, \frac{5}{3}x^2, 3x^2\right], \{-2,3\}, x=1, \left[-\frac{2}{5}y^2, 4y^2, -7y^2\right], \left\{\frac{3}{2}-2\right\}, 5\sqrt{39}$

6. Solve by completing the square.

$x^2 - 10x + 2 = 0$

7. Solve by the quadratic formula.

$4x^2 - 1 = 5x$

In 8-11, solve by any method. (Choose the method that is the quickest!)

8. $x^2 + 2x - 3 = 0$

9. $3x^2 = 54$

10. $x^2 + 4x = 7$

11. $5 - 3x^2 = 7x$

Find the discriminant and state the number of solutions for each quadratic equation.

12. $x^2 - 6x + 9 = 0$

13. $3x^2 = 2x + 5$

14. $4x^2 = 8x - 5$

Scrambled answers: $\{-3,1\}, \left\{\frac{5 \pm \sqrt{41}}{8}\right\}, \left\{\frac{-7 \pm \sqrt{109}}{6}\right\}, [64, 2\ solutions], \{5 \pm \sqrt{23}\},$

$[-16, no\ solutions], \{\pm 3\sqrt{2}\}, [0, 1\ solution], \{-2 \pm \sqrt{11}\}$