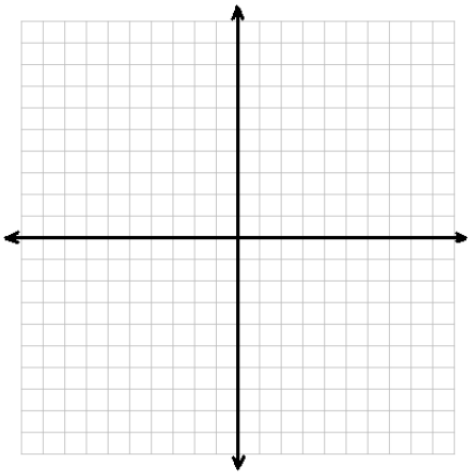
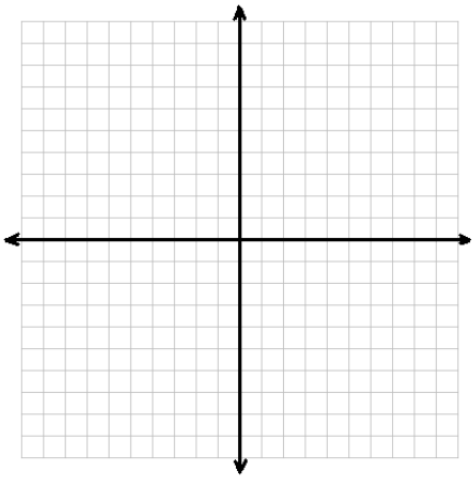
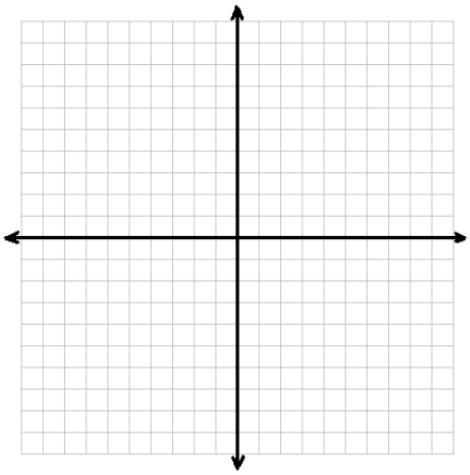
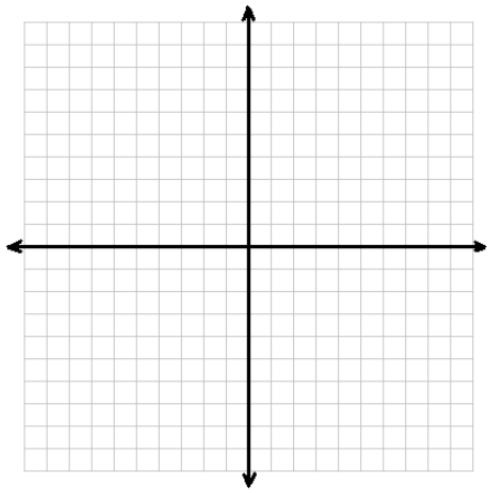
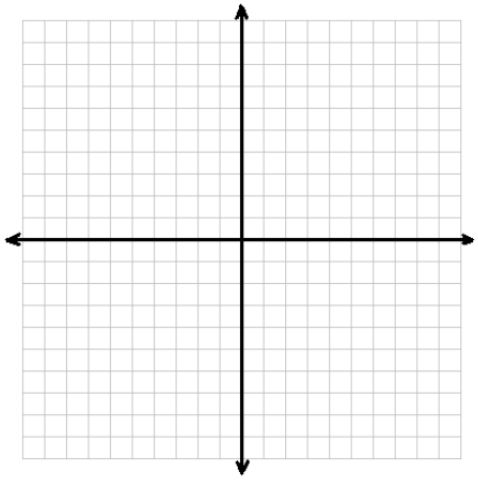
Station I: Graphing Quadratics

1. $y = x^2 - 2$	Table	Graph
Vertex: _____ **Equation of Axis of Symmetry:** _____ **Domain:** _____ **Range:** _____	x y	

2. $y = -2x^2 + 3$	Table	Graph
Vertex: _____ **Equation of Axis of Symmetry:** _____ **Domain:** _____ **Range:** _____	x y	

3. $y = -x^2 + 4x - 2$	Table	Graph
Vertex: _____ **Equation of Axis of Symmetry:** _____ **Domain:** _____ **Range:** _____	x y	

4. $y = \frac{1}{2}x^2 + x + 2$	Table	Graph
Vertex: _____ **Equation of Axis of Symmetry:** _____ **Domain:** _____ **Range:** _____	x | y	

5. $y = -3x^2 - 6x + 5$	Table	Graph
Vertex: _____ **Equation of Axis of Symmetry:** _____ **Domain:** _____ **Range:** _____	x | y	

Station I: Answer Key

1. $y = x^2 - 2$

Vertex: $(0, -2)$

Equation of Axis of Symmetry: $x = 0$

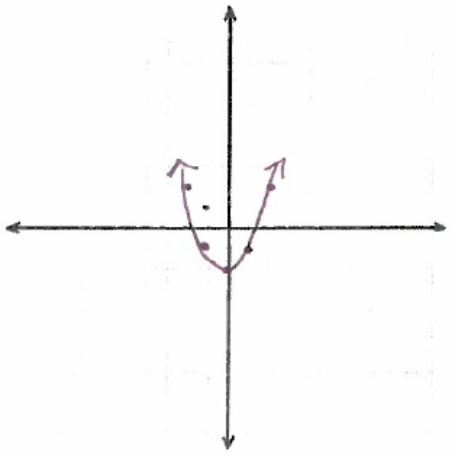
Domain: all real #s

Range: $y \geq -2$

Table

x	y
-2	2
-1	-1
0	-2
1	-1
2	2

Graph



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

Vertex: $(0, 3)$

Equation of Axis of Symmetry: $x = 0$

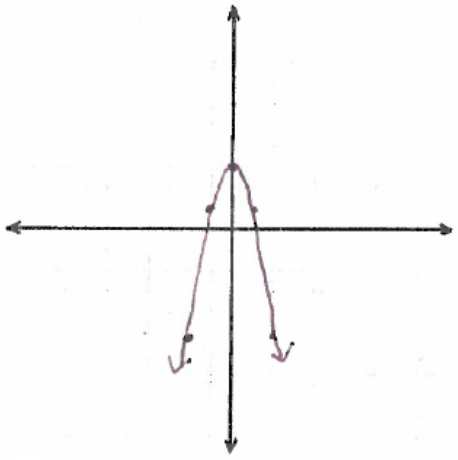
Domain: all real #s

Range: $y \leq 3$

Table

x	y
-2	-5
-1	1
0	3
1	1
2	-5

Graph



3. $y = -x^2 + 4x - 2$

$\frac{-4}{2(-1)} = \frac{-4}{-2} = 2 \quad -4 + 8 - 2$

Vertex: $(2, 2)$

Equation of Axis of Symmetry: $x = 2$

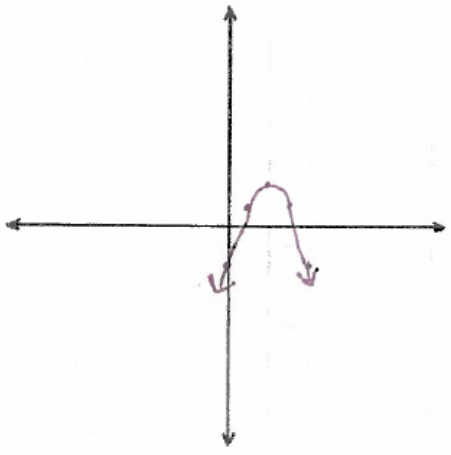
Domain: all real #s

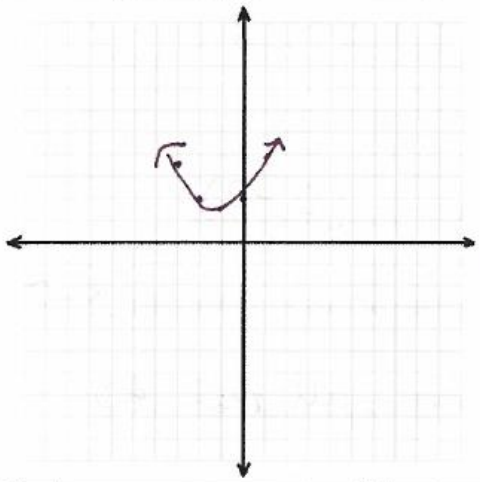
Range: $y \leq 2$

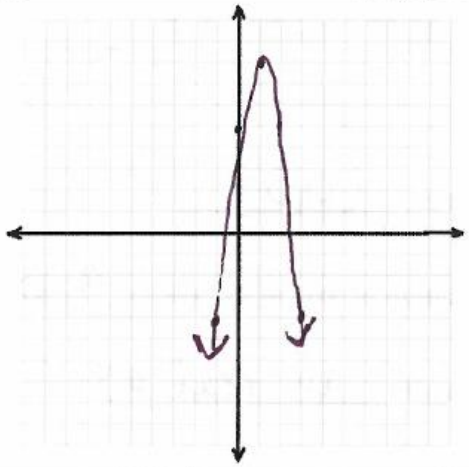
Table

x	y
0	-2
1	1
2	2
3	1
4	-2

Graph



4. $y = \frac{1}{2}x^2 + x + 2$	Table	Graph
Vertex: (-1, 1.5) Equation of Axis of Symmetry: x = -1 Domain: all real #s Range: $y \geq 1.5$	x | y -3 | 3.5 -2 | 2 -1 | 1.5 0 | 2 1 | 3.5	

5. $y = -3x^2 - 6x + 5$	Table	Graph
Vertex: (1, 8) Equation of Axis of Symmetry: x = 1 Domain: all real #s Range: $y \leq 8$	x | y -1 | -4 0 | 5 1 | 8 2 | 5 3 | -4	

 # 5)

- **The vertex should be (-1, 8)!!**
- **The axis of symmetry should be x = -1.**
- **The graph should be shifted 2 units to the left!**

Station 2: Solving Quadratics (Level 2 & 4)

Level 2

Solve each equation by finding square roots. If the equation has no real number solution, write no solution.

1. $x^2 + 16 = 0$

2. $\frac{1}{3}x^2 - 3 = 0$

3. $x^2 + 5 = 5$

4. $x^2 + 25 = 0$

5. $\frac{1}{2}x^2 - 3 = -1$

6. $4x^2 = 25$

Level 4

Solve the system of equations.

7. $\begin{matrix} y = x^2 + 2x + 1 \\ y = x + 1 \end{matrix}$

8. $\begin{matrix} y = 3x + 4 \\ y = -x^2 + 4 \end{matrix}$

9. $\begin{matrix} y = x^2 \\ y = x + 2 \end{matrix}$

Station 2: Answer Key

Level 2

Solve each equation by finding square roots. If the equation has no real number solution, write no solution.

1. $x^2 + 16 = 0$

No solution

2. $\frac{1}{3}x^2 - 3 = 0$

$\boldsymbol{x = \pm 3}$

3. $x^2 + 5 = 5$

$x = 0$

4. $x^2 + 25 = 0$

No solution

5. $\frac{1}{2}x^2 - 3 = -1$

$\boldsymbol{x = \pm 2}$

6. $4x^2 = 25$

$\boldsymbol{x = \pm \frac{5}{2}}$

Level 4

Solve the system of equations.

7. $y = x^2 + 2x + 1$, $y = x + 1$

(0, 1) or (-1, 0)

8. $y = 3x + 4$, $y = -x^2 + 4$

(0, 4) or (-3, -5)

9. $y = x^2$, $y = x + 2$

(2, 4) or (-1, 1)

Station 3: Solve by Factoring

Solve using the zero-product property. Show your work!!

1. $(2x - 10)(3x - 2) = 0$
2. $(3x + 9)(2x - 15) = 0$
3. $2x(5x + 2) = 0$

Solve by factoring. Show your work!!

4. $x^2 + 7x + 12 = 0$
5. $x^2 - 5x + 4 = 0$
6. $2x^2 + 5x - 3 = 0$

7. $2x^2 - 9x = x^2 - 20$
8. $5x^2 = 10x$
9. $x^2 - 49 = 0$

Station 3: Answer Key

Solve using the zero-product property. Show your work!!

1. $(2x - 10)(3x - 2) = 0$

   $x = 5$ or $x = \frac{2}{3}$

2. $(3x + 9)(2x - 15) = 0$

   $x = -3$ or $x = 7.5$

3. $2x(5x + 2) = 0$

   $x = 0$ or $x = -\frac{2}{5}$

Solve by factoring. Show your work!!

4. $x^2 + 7x + 12 = 0$

   $x = -3$ or $x = -4$

5. $x^2 - 5x + 4 = 0$

   $x = 4$ or $x = 1$

6. $2x^2 + 5x - 3 = 0$

   $x = \frac{1}{2}$ or $x = -3$

7. $2x^2 - 9x = x^2 - 20$

   $x = 4$ or $x = 5$

8. $5x^2 = 10x$

   $x = 0$ or $x = 2$

9. $x^2 - 49 = 0$

   $x = 7$ or $x = -7$

Station 4: Quadratic Formula

Solve each equation using the quadratic formula. Show your work!!! Round answers to the nearest hundredth.

1. $4x^2 + 3x - 8 = 0$
2. $2x^2 - 3x = 20$
3. $-x^2 + 8x + 4 = 5$
4. $64x^2 + 12x - 1 = 0$
5. $x^2 + 4x = 1$
6. $12x^2 + 16x = 28$

Station 4: Answer Key

Solve each equation using the quadratic formula. Show your work!!! Round answers to the nearest hundredth.

1. $4x^2 + 3x - 8 = 0$

   $\boldsymbol{x \approx 1.09}$ **or** $\boldsymbol{x \approx -1.84}$

2. $2x^2 - 3x = 20$

   $\boldsymbol{x = 4}$ **or** $\boldsymbol{x = -2.5}$

3. $-x^2 + 8x + 4 = 5$

   $\boldsymbol{x \approx 0.13}$ **or** $\boldsymbol{x \approx 7.87}$

4. $64x^2 + 12x - 1 = 0$

   $\boldsymbol{x = \frac{1}{16}}$ **or** $\boldsymbol{x = -\frac{1}{4}}$

5. $x^2 + 4x = 1$

   $\boldsymbol{x \approx 0.24}$ **or** $\boldsymbol{x \approx -4.24}$

6. $12x^2 + 16x = 28$

   $\boldsymbol{x = 1}$ **or** $\boldsymbol{x = -2\frac{1}{3}}$