

STATION #1:

GRAPHING QUADRATIC FUNCTIONS

SHOW ALL WORK FOR FULL CREDIT!!!!!! NO PARTIAL CREDIT GIVEN.

Directions for all questions: *Graph each of the following. Then, identify the axis of symmetry, the vertex, the domain and range, and the intervals increasing/decreasing.*

1. $f(x) = x^2 - 9$

2. $y = (5x - 2)^2$

3. Write the equation of the parabola in vertex form if the vertex is $(-2, 7)$ and it contains the point $(3, -4)$.

4. Follow directions above: $y = -x^2 - 4x + 2$

5. Follow directions above: $y = -2x^2 - 3$

STATION #2:

STANDARD FORM

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Directions for all questions: *Identify the vertex, axis of symmetry, min or max, and domain and range of the following functions.*

1. $y = x^2 + 12x + 36$

2. $y = -x^2 - 3x + 6$

3. Find the vertex and y-intercept: $f(x) = 4x^2 - 8x + 12$

4. What is the x value of the vertex in the equation?

$$y = -5x^2 + \frac{4}{7}$$

5. What is the axis of symmetry in the equation?

$$y = 6x^2 + 4x - 7$$

STATION #3:

MODELING WITH QUADRATIC FUNCTIONS

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Directions for all question: *Find the equation in standard form of the parabola passing through the points.*

Step 1: stat, step 2: edit, step 3: enter x's in L1 and y's in L2, step 4: stat, step 5: calc, step 6: option 5 quadreg, press enter and it gives you the A, B, C coefficients for the standard quadratic form; write down the standard form for each question with the appropriate A, B, C given

1. $(1,-2)$ $(2,-2)$ $(3,-4)$

2. $(2,9)$ $(-4,5)$ $(1,0)$

3. A parabola contains the points $(0,-4)$ $(2,4)$ and $(4,4)$. Find the vertex of this parabola.

4. Put the parabola from #3 into vertex form.

5. List out the domain and range of the parabola in #3.

STATION #4:

SOLVING QUADRATIC EQUATIONS

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Directions: Solve the following quadratic equations by factoring.

1. $x^2 + 11x + 18 = 0$

2. $2x^2 = 8x$

3. $2x^2 + 6x = -4$

Directions: Use the quadratic formula to solve.

4. $5x^2 - 11x - 6 = 0$

5. $x^2 + 4x + 6 = 0$

STATION #5:

COMPLETING THE SQUARE

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Directions: Solve each quadratic equation by completing the square. Find solutions.

1. $x^2 - 12x = -11$

2. $5x^2 = 60 - 20x$

3. $-x^2 + 6x + 10 = 0$

4. Put $y = x^2 - 10x + 4$ into vertex form, by completing the square.

5. What values of k would make this a perfect square trinomial? $x^2 + kx + 216$

STATION #6: THE QUADRATIC FORMULA

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Directions: Solve each equation using the Quadratic Formula.

1. $x^2 - 7x + 14 = 0$

2. $2x^2 + 1 = 6x$

Directions: Evaluate the discriminant for each equation and determine the number and types of roots & place in vertex form.

3. $4x + 1 = 2x^2$

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