

## STATION #1 – QUADRATIC FUNCTIONS & TRANSFORMATIONS

Describe how the following functions were translated from the function  $f(x) = x^2$

1.  $f(x) = (x + 4)^2 - 4$

2.  $y = 10 - 2(x - 2)^2$

Identify the axis of symmetry, the min or max, and the domain and range of each function.

3.  $f(x) = x^2 - 4$

4.  $y = (2x - 1)^2$

Write in Standard form:

5.  $y = 3(x + 1)^2 - 5$

## STATION #2 – STANDARD FORM

Identify the vertex, axis of symmetry, min or max, and domain and range of the following functions.

1.  $y = x^2 + 6x + 9$

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

3.  $f(x) = 2x^2 - 4x + 6$  Find the vertex and y-intercept.

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

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

## STATION #3 – FACTORING

Factor the following polynomials completely.

1.  $x^2 + 7x + 10$

2.  $-x^2 + 11x - 18$

3.  $16x^2 - 80x + 100$

4.  $9x^2 - 36$

5.  $x^3 + 8$

## STATION #4 – SOLVING QUADRATIC EQUATIONS

Solve the following quadratic equations by factoring.

1.  $x^2 + 6x + 8 = 0$

2.  $2x^2 = 8x$

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

Solve the following quadratic equations using your graphing calculator. Round to two decimal places.

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

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

## STATION #5 – COMPLETEING THE SQUARE

Solve each quadratic equation by completing the square.

1.  $x^2 + 10x - 1 = 0$

2.  $x^2 = -2x + 7$

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

4. Put  $y = x^2 - 6x + 4$  into vertex form, by completing the square.

5. What values of  $k$  would make this a perfect square trinomial?  $x^2 + kx + 196$

## STATION #6 – THE QUADRATIC FORMULA

Solve each equation using the Quadratic Formula.

1.  $x^2 - 8x + 15 = 0$

2.  $2x^2 + 3 = 7x$

Evaluate the discriminant for each equation and determine the number and types of roots.

3.  $5x + 1 = 3x^2$

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

