MBF 3C: UNIT 5 – Factoring and Expanding with Quadratics
Lesson 2: Converting to Standard Form

Standard Form of a Parabola

Standard Form of a Quadratic Relation:

$$y = ax^2 + bx + c$$

This controls the direction and opening as well as the step pattern (same as in vertex form and factored form!)

This number is the y – intercept! In this case, the y – intercept would be (0, c)

Getting to Standard Form…

In order to get to standard form, some algebra is required. Let's review what we know about polynomial multiplication:

Examples: Expand.

$(x + 3)^2$ $3(x – 4)^2$ $3(x – 4)(x + 2)$

Practice: Expand the following expressions.

1. $(x -5)(x + 2)$	2. $2(x – 1)^2 + 3$	3. $2(x – 3)(x + 1)$
4. $2(x + 4)^2 - 3$	5. $3(x + 2)(x – 1)$	6. $– (x – 3)^2 - 2$

1. Match each expression in the left column with one in the right column.
(Hint: simplify)

1. $2x(x - 3)$	A. $2x + 8$
2. $4x - 2(x - 4)$	B. $x^2 + 3 - (3 + 6x - x^2)$
3. $3(x^2 - 4x + 2)$	C. $x(x - 6) + 2(x^2 - 3x + 1)$

2. a) Expand to express $y = 2(x - 3)^2 - 2$ in standard form.

b) Expand each of the following and compare with the equation found in a).

$y = -(x - 2)(x - 4)$ $y = 3(x - 4)(x + 2)$

$y = 2(x - 4)(x - 2)$ $y = 2(x - 3)(x + 1)$

c) By comparing the expanded form of the equations in 2a and 2b find the two quadratics that represent the same parabola.

3. List all the information you can about the parabola $y = 2x^2 - 4x - 6$ and then find its match (in another form, of course) in question #2