Algebra 2

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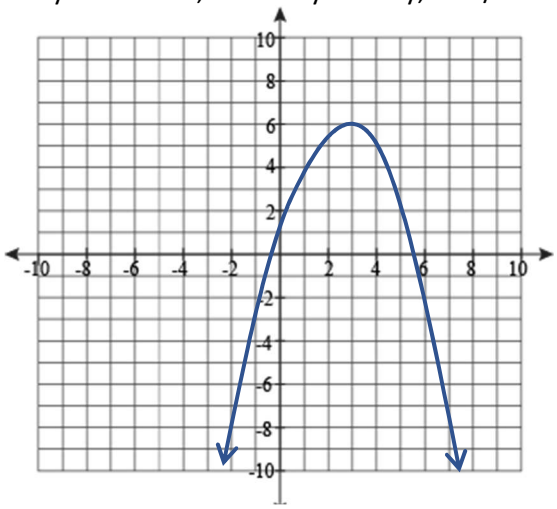
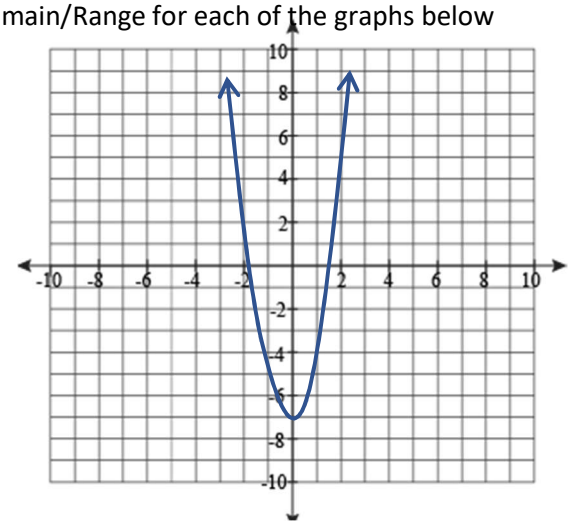
Quadratic Functions Study Guide

Learning Target 1: Identify and graph quadratic functions (Section 4-1 Pg. 194)

1.) Identify the Vertex, Axis of Symmetry, Max/Minimum, Domain/Range for each of the graphs below





2.) For each of the quadratic functions**,** give the Vertex, AOS, Max/Min, Domain/Range

$f(x) = (x + 1)^2 + 10$ **$f(x) = (x - 7)^2 + 2$**

3.) Give the translation of each of the functions below from the parent function $y = x^2$

$f(x) = (x - 6)^2 + 2$ **$f(x) = (x + 5)^2 - 4$**

4.) A. In the xy-plane, the graph of $y = (x + 2)^2 - 10$ intersects the graph of $y = 2x + 6$ at the point (0, 6) and one other point. What is the other point?

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Learning Target 2: Model with quadratic functions (4-3 Pg. 209)

5.) Find the equation in standard form ($y = ax^2 + bx + c$) for each of the parabolas that passes through the set of points:

(0 , 17) ; (-1 , 8) ; (-5, -8) **(0 , 10) ; (4 , -6) ; (8, 10)**

Learning Target 3: Find common and binomial factors of quadratic expressions (4-4 Pg. 216)

6.) Use double distribution to convert each factored equation into standard form ($y = ax^2 + bx + c$)

$f(x) = (x + 3)(x + 8)$ **$f(x) = (x - 10) (x + 2)$** **$f(x) = (2x + 5) (x - 7)$**

7.) Factor each of the expressions:

$15x^2 - 10x$ **$x^2 + 8x + 7$** **$x^2 + 2x - 63$**

BONUS: Factor each expressions:

$2x^2 + 11x + 15$ **$4x^2 + 7x + 3$** **$6x^2 + 16x + 10$**

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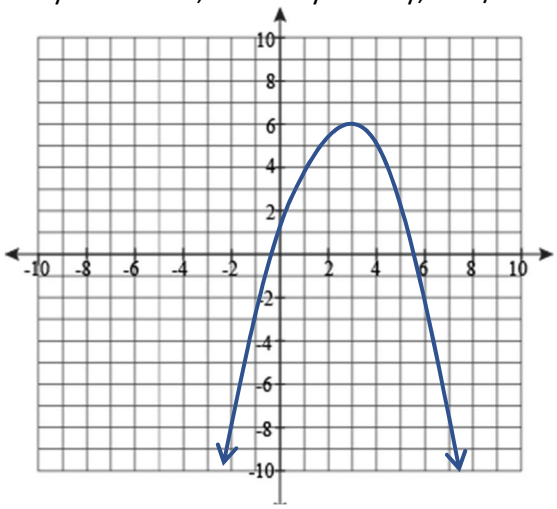

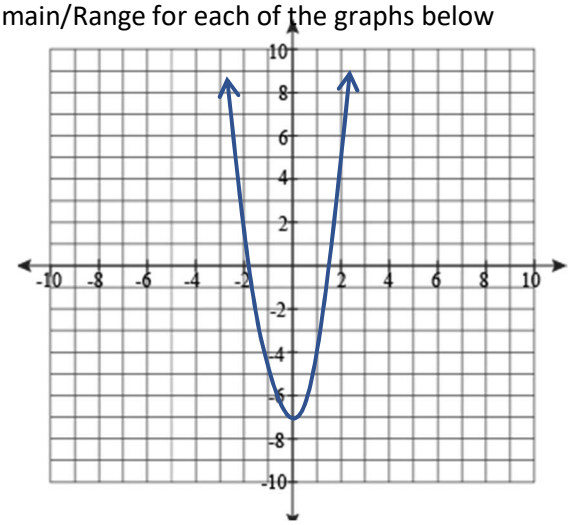

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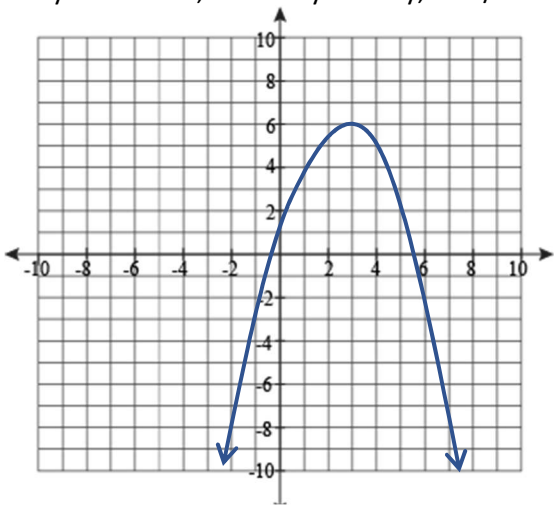

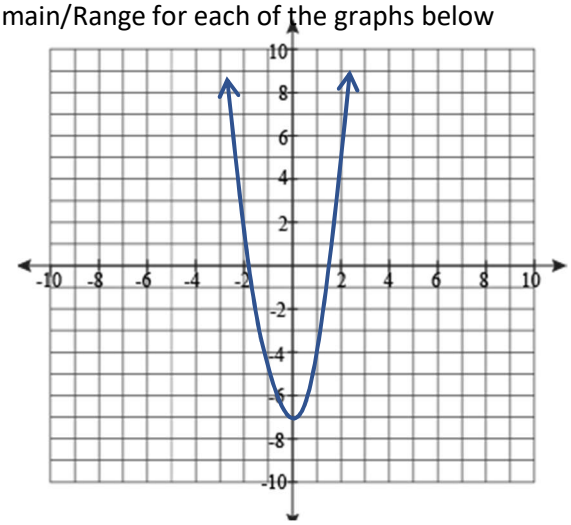

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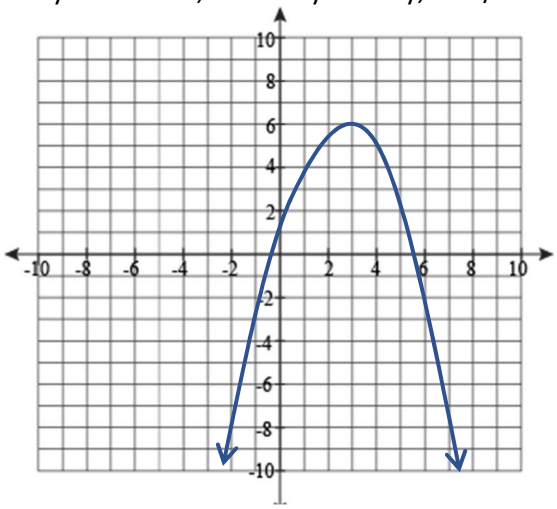

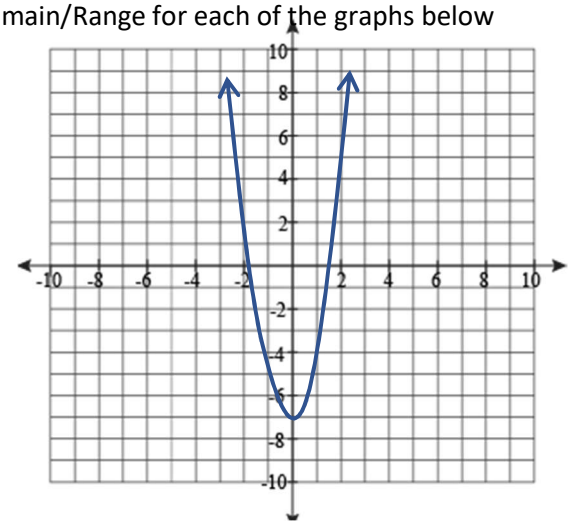

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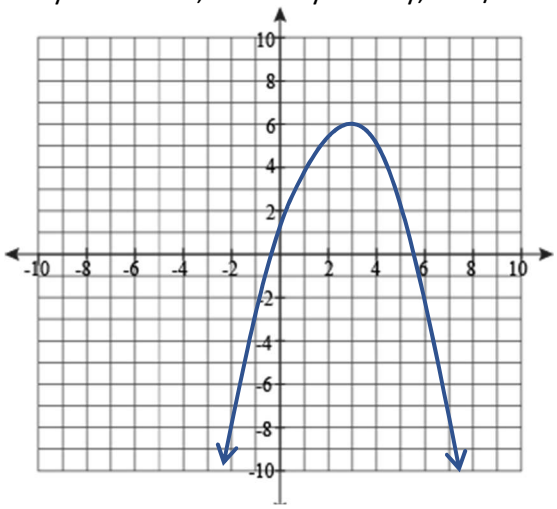

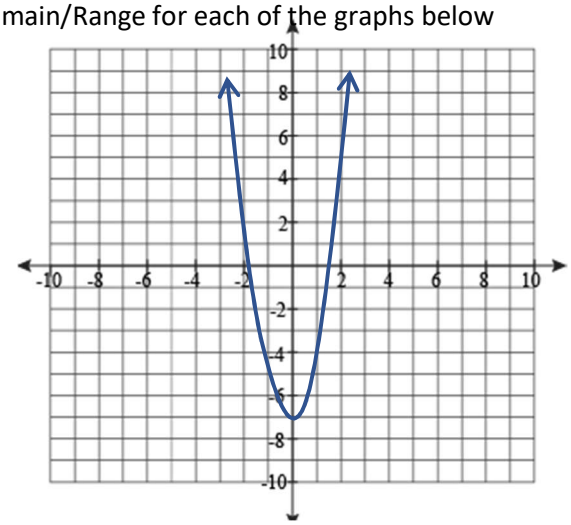

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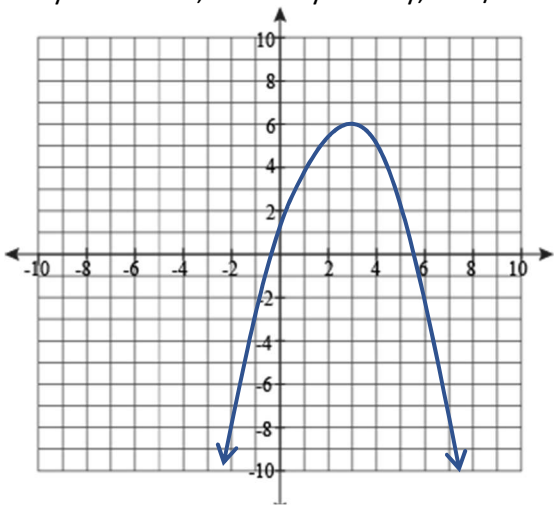

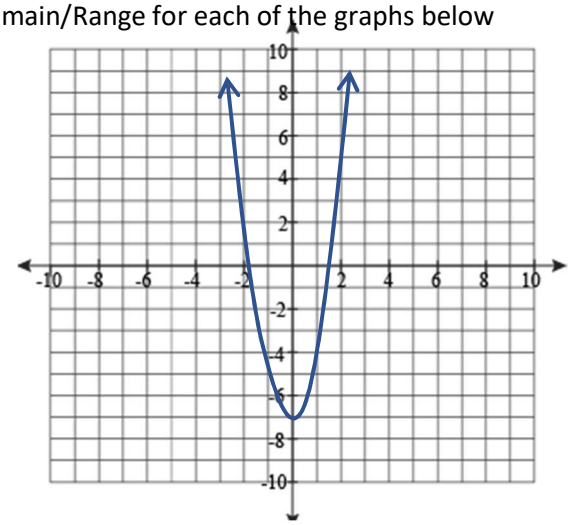

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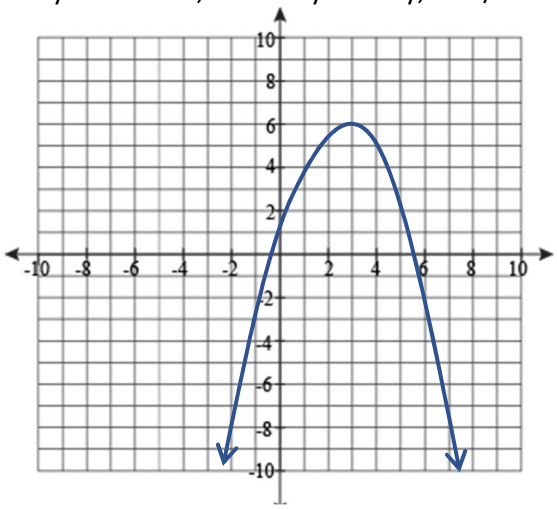

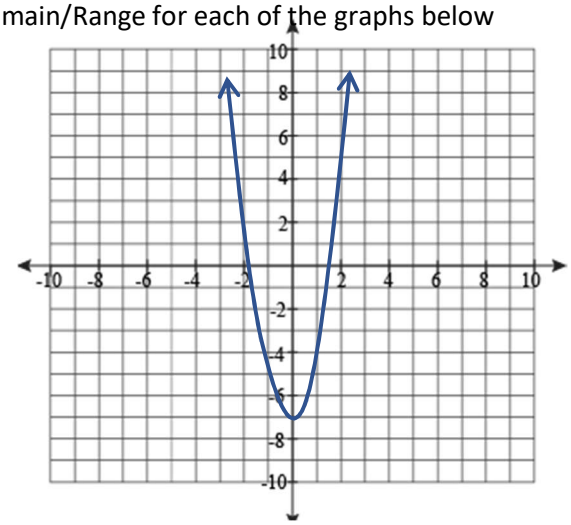

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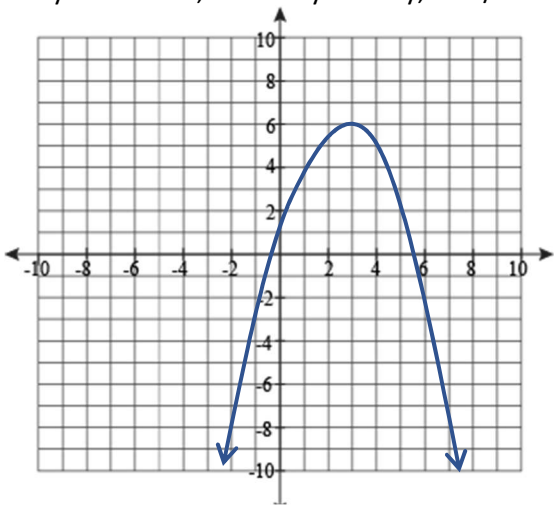

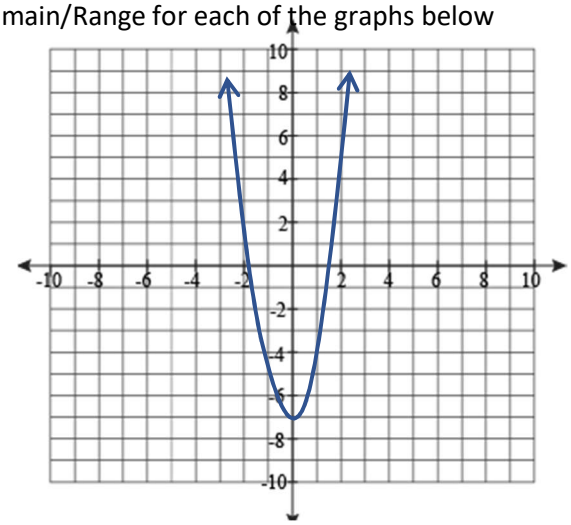

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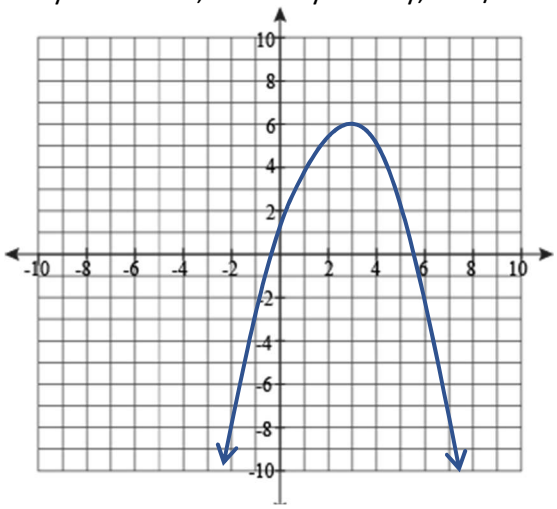

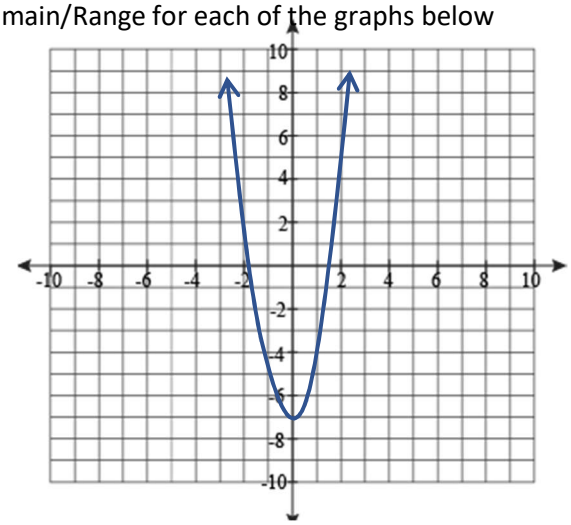

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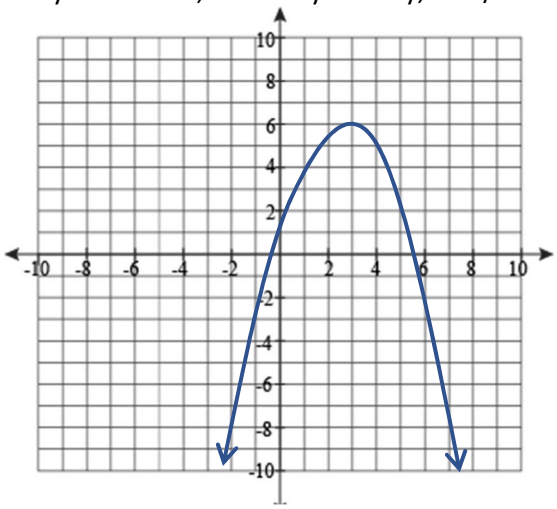
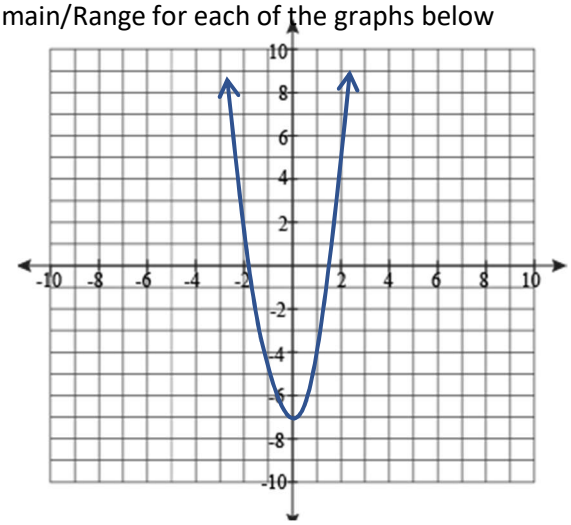
1.) Identify the Vertex, Axis of Symmetry, Max/Minimum, Domain/Range for each of the graphs below





2.) For each of the quadratic functions**,** give the Vertex, AOS, Max/Min, Domain/Range

$f(x) = (x + 1)^2 + 10$ **$f(x) = (x - 7)^2 + 2$**

3.) Give the translation of each of the functions below from the parent function $y = x^2$

$f(x) = (x - 6)^2 + 2$ **$f(x) = (x + 5)^2 - 4$**

4.) A. In the xy-plane, the graph of $y = (x + 2)^2 - 10$ intersects the graph of $y = 2x + 6$ at the point (0, 6) and one other point. What is the other point?

B. In the xy-plane, the graph of $y = 3x^2 - 14x$ intersects the graph of $y = x$ at the points (0 , 0) and (a,a). What is the value of a?

Learning Target 2: Model with quadratic functions (4-3 Pg. 209)

5.) Find the equation in standard form ($y = ax^2 + bx + c$) for each of the parabolas that passes through the set of points:

(0 , 17) ; (-1 , 8) ; (-5, -8) **(0 , 10) ; (4 , -6) ; (8, 10)**

Learning Target 3: Find common and binomial factors of quadratic expressions (4-4 Pg. 216)

6.) Use double distribution to convert each factored equation into standard form ($y = ax^2 + bx + c$)

$f(x) = (x + 3)(x + 8)$ **$f(x) = (x - 10) (x + 2)$** **$f(x) = (2x + 5) (x - 7)$**

7.) Factor each of the expressions:

$15x^2 - 10x$ **$x^2 + 8x + 7$** **$x^2 + 2x - 63$**

BONUS: Factor each expressions:

$2x^2 + 11x + 15$ **$4x^2 + 7x + 3$** **$6x^2 + 16x + 10$**