Name: Key Date: _____ Hour: ____

Chapter 4 Study Guide - Algebra 2

Section 4.1 - Graphing Quadratic Functions

For #1-4, find the y-intercept, the equation for the axis of symmetry, and the coordinates for the vertex.

1) $f(x) = x^2 + 5x + 12$

y-int: 12

AoS: $x = -2.5$

Vertex: $(-2.5, 5.75)$

2) $f(x) = -7x + 15$ ← not a quadratic...

y-int: 15

AoS:

Vertex:

3) $f(x) = -x^2 + 3x - 1$

y-int: -1

AoS: $x = 1.5$

Vertex: $(1.5, 1.25)$

4) $f(x) = -3x^2 + 12x - 1$

y-int: -1

AoS: $x = 2$

Vertex: $(2, 11)$

Determine whether each function has a maximum or a minimum. Then, find the maximum/minimum value.

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

Maximum value = 1.25

6) $f(x) = -3x^2 - 4x + 5$

Maximum value = 6.3

Section 4.2 - Solving Quadratic Equations by Graphing

Solve each equation by graphing. (hint: press 2ND, TRACE, to find the exact values for the zeros that are between two numbers!)

7) $x^2 - x - 20 = 0$

$x = -4$
$x = 5$

8) $4x^2 - 6x - 15 = 0$

$x = -1.3$
$x = 2.8$

Section 4.3 - Solving Quadratic Equations by Factoring

Solve each equation by factoring.

9) $2x^2 - 2x - 24 = 0$

$(2x - 8)(x + 3)$
OR
$(x - 4)(2x + 6)$

$x = -3$
$x = 4$

10) $2x^2 - 5x - 3 = 0$

$(2x + 1)(x - 3)$

$x = 3$
$x = -1/2$