UNIT 4 STUDY GUIDE

Axis of Symmetry: Vertex: Maximum:	Minimum: X-intercept: Y-intercept:
Explain how to find the GCF when factoring polynomials.	Explain what the graph of a quadratic equation looks like.
If the leading coefficient (a) is positive the parabola will open _____. Example: $y = 2x^2$	If the leading coefficient (a) is negative the parabola will open _____. Example: $y = -3x^2$
1) What is the result of $(-6x^7 + 7) + (-6x^2 - 15)$?	2) What is the result of $(-9x^2 + 9x) - (-8x^2 + 8x)$?
3) What is the result of $(5x^2 - x - 7)(x + 4)$?	4) What is the result of $(2x^6 + 3x^2)(4x^4 + 5)$
5) Factor: $x^2 - 8x + 12$	6) Find the zeros of the function: $x^2 - 2x - 15 = 0$
7) Factor: $3x^2 - 2x - 5$	8) Find the zeros of the function. $2x^2 + 3x - 9 = 0$

9) Factor. $49x^2 - 121$	10) Factor. $25y^2 - 40y + 16$
11) What are the x-intercepts of the parabola with the equation $f(x) = 2(x + 3)(x + 1)$?	12) Solve $2x^2 - 13x = -15$ for x.
13) Solve $(x - 8)^2 - 6 = 43$ for x.	14) What are the x-intercepts of $f(x) = (3x + 24)(x - 8)$?
15) Determine whether the parabola opens up or down. A) $y = 3x^2 + 8x + 6$ C) $y = 9 - 8x - x^2$ B) $y = -x^2 + 7x - 3$ D) $y = x^2 + 4x - 1$	16) Find the axis of symmetry for the equation. $y = -3x^2 + 10x + 9$
17) Find the vertex of the equation. $y = 5x^2 - 10x + 3$	18) Find the axis of symmetry for the equation. $y = 2x^2 + 4x + 5$
19) Find the vertex of the equation. $y = -x^2 - 2x$	20) The dimensions of a community garden are such that the length is 7 feet shorter than 5 times its width. Write an expression that describes the area. Find the area if the width = 8.
21) Given a rectangle with the width and length: L = 5x + 7 and W = 4x – 9. Find the perimeter and area of the figure.	22) The height of a baseball is given by the equation $f(x) = -16t^2 + 32t + 9$, where f(x) represents the height of the baseball in feet and t represents the time, in seconds, after it was hit by the batter. A) What is the height of the ball after 1.5 seconds? B) What is the maximum height of the ball? C) When does the ball reach the ground?