Algebra 1: 12.4 Guided Notes **Name** _____ **Period** _____
Solving Quadratics by Factoring

Learning Goals:
To find the solutions to quadratic equations using factoring.
To graph the solutions to a quadratic equation.

Notes

Zero Product Property states _____.

If $ab = 0$, then $a = 0$ or $b = 0$.

PROBLEM 1 – "Roots of Quadratic Equations" (Page 744)

1. Use the Zero Product Property to determine the solutions of the quadratic equation $x^2 - 4x - 5 = 0$. Then, check your solutions by substituting back into the original equation.

_____ _____

_____ _____

_____ _____

_____ _____

_____

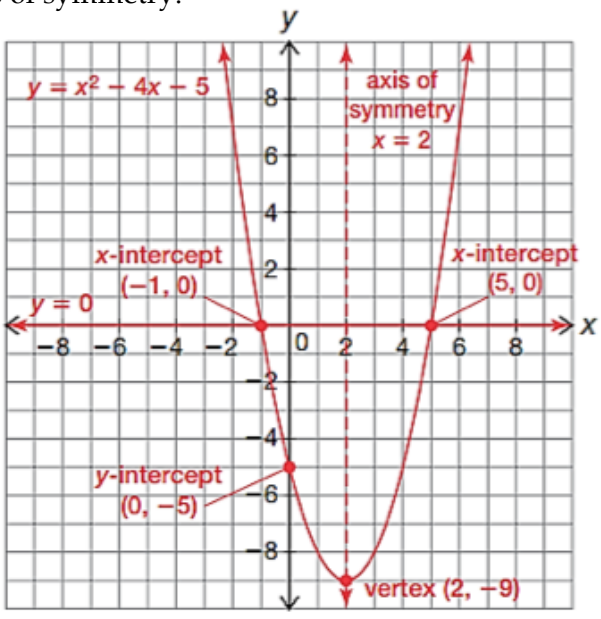
2. Let's examine the quadratic equation $0 = x^2 - 4x - 5$. (Page 745)
   a. Graph both sides of the quadratic equation on the coordinate plane shown.
   b. SKIP
   c. Identify the vertex, x- and y-intercepts, and the axis of symmetry.

y-intercept: _____

x-intercept(s): _____

axis of symmetry: _____

vertex: _____



The _____ are the solutions to the quadratic equation, a.k.a the _____ because you set the quadratic equation equal to zero and solve for x. The x-intercepts also indicate where the graph crosses the x-axis and are also referred to as the _____.

Determine the roots of each quadratic equation. (Page 746)

3. $x^2 - 8x + 12 = 0$

4. $x^2 - 5x - 24 = 0$

5. SKIP

6. SKIP

7. $x^2 + 8x = -7$

8. $x^2 - 5x = 13x - 81$

9. $3x^2 - 22x + 7 = 0$

10. SKIP

PROBLEM 2 – "More Practice" (Page 749)

Calculate the zeros of each quadratic function, or the roots of each quadratic equation, if possible.

1. SKIP

2. $f(x) = x^2 - 11x + 12$

3. SKIP

4. $2x^2 + 4x = 0$

5. $\frac{2}{3}x^2 - \frac{5}{6}x = 0$