Name: _____ Date: _____ Math 9/10 Honors

Lesson 1.4 – Solving Quadratic & Quadratic-like Equations (pages 230 – 244) in Red 9/10 textbook)

*Last lesson, we solved **linear equations** of the form $ax + b = 0$. Linear equations only have **one solution.***

*This lesson, we will solve **quadratic equations** of the form $ax^2 + bx + c = 0$. Quadratic equations can have up to **two solutions.***

1. Consider the equation $x^2 + 3x - 10 = 0$. Demonstrate that $x = 2$ and $x = -5$ are both solutions to this equation.

I.   Solving Simple Power Equations

1. Solve for x: $3x^2 - 1 = 8$

Equations of the form $x^2 = k$

2. Solve for x: $5 - 2x^2 = 11$

3. Solve for x: $(x + 3)^2 = 36$

4. Solve for x: $(x - 4)^2 = 7$

II.   Solving Quadratics by Factoring

5. Solve for x: $x^2 = 3x$

The Zero Product Property

(or Null Factor Law as your book calls it…)

6. Solve for x: $x^2 + 3x = 28$

7. Solve for x: $5x^2 = 3x + 2$

Recall the different methods for factoring quadratic polynomials:

- **Splitting the Middle Term**

- **Difference of Squares Pattern**

- **Perfect Square Pattern**

8. Solve for x: $\frac{x-2}{x} = \frac{6+x}{2}$

9. Solve for x: $\frac{1}{x} + \frac{4}{x+6} = 1$

10. Solve for x: $x^2 - 121 = 0$

III. Practice on Your Own

11. Solve for x: $x^2 - 4x - 32 = 0$

12. Solve for x: $4x^2 = 9$

13. Solve for x: $x^2 = 225$

14. Solve for x: $16 - 169x^2 = 0$

15. Solve for x: $\frac{7}{17}x^2 = \frac{175}{4352}$

16. Solve for x: $\frac{11}{15}x^2 - \frac{1100}{1815} = 0$

17. Solve for x: $12x^2 - 19x = 0$

18. Solve for x: $x^2 - 10x - 39 = 0$

19. Solve for x: $6x^2 - 95x + 75 = 0$

20. Solve for x: $30x^2 - 31x + 5 = 0$

IV.   Quadratic-Like Equations

21. Solve for x: $x^4 - 13x^2 + 36 = 0$

22. Solve for x: $x^3 - 16x^2 + 48x = 0$

23. Solve for x: $(x-1)^{-\frac{1}{2}}(x-7) + 4(x-1)^{\frac{1}{2}} = 0$

24. The equation $4x^4 - 9x^3 + 2x^2 = 0$ has three real solutions, A, B, and C. Where $A < B < C$. Solve for A, B, and C.

25. Solve for t: $\quad \dfrac{8}{2-t} + \dfrac{2}{2+t} + \dfrac{4}{4-t^2} = 0$

26. Solve for x: $\quad \dfrac{x+1}{x-1} + \dfrac{-4}{x+3} + \dfrac{8}{x^2+2x-3} = 0$

27. Solve for x: $\quad \dfrac{1}{x+3} - \dfrac{1}{x+4} = \dfrac{1}{2}$