

Pre-Calculus Academic  
Solving Equations (Quadratic, Absolute Value,  
Rational and Radical) Study Guide

Name: \_\_\_\_\_  
Date: \_\_\_\_\_ Pd. \_\_\_\_\_

Directions: Solve for x. Check for extraneous solutions. SHOW ALL WORK!

1.  $8x^2 + 4x - 16 = -x^2$

2.  $6x^2 - 18x - 18 = 6$

3.  $\sqrt{4x + 8} - 3 = x$

4.  $|x + 2| = 7$

5.  $20x^3 - 125x = 0$

6.  $\frac{6}{x} - \frac{2}{x+3} = \frac{3x+15}{x^2+3x}$

7.  $(x - 5)^2 + 9 = 73$

8.  $9x^2 = 4 + 7x$

$$9. \frac{5x-4}{5x+4} = \frac{2}{3}$$

$$10. 15x^2 - 3x - 3 = -7x$$

$$11. \frac{3}{x+2} - \frac{4}{x-2} = 5$$

$$12. \frac{x+5}{x^2+x} = \frac{1}{x^2+x} - \frac{x-6}{x+1}$$

$$13. |x - 10| = x^2 - 10x$$

$$14. 3(x + 1)^2 - 5 = 70$$

$$15. x^4 + 5x^2 - 36 = 0$$

$$16. x^4 + 2x^3 - 8x - 16 = 0$$

$$17. \sqrt{3x - 58} = \sqrt{\frac{x}{10}}$$

$$18. \sqrt{x+1} = 3 - \sqrt{4-x}$$