Day 08 Solving Radical Equations Notes & HW **Name _____**

Date _____ Block _____

How to Solve a Simple Radical Equation:

1. **Isolate the radical.**
2. **Raise both sides of the equation to the power of the index.**
3. **Simplify.**
4. **Check for extraneous solutions.**

1. $\sqrt{x} = \frac{1}{9}$

2. $\sqrt[4]{2x} - 13 = -9$

3. $\sqrt{x-5} - 7 = 0$

4. $\sqrt[3]{x + 40} = -5$

5. $2\sqrt[3]{1 - 3x} + 4 = 6$

6. $\sqrt[4]{3x-5} - 1 = 2$

7. $x - 4 = \sqrt{2x}$

8. $\sqrt{3x + 13} = x + 5$

How to Solve an Equation with Rational Exponents:

1. **Isolate the variable or expression that is raised to the power.**
2. **Raise both sides of the equation to the reciprocal power of the rational exponent.**
3. **Simplify.**
4. **Check for extraneous solutions.**

9. $x^{\frac{1}{3}} - \frac{2}{5} = 0$

10. $3(x + 1)^{\frac{4}{3}} = 48$

11. $-(3x+4)^{\frac{1}{2}}+3=0$

12. $2(x+1)^{\frac{3}{2}}=50$

How to Solve an Equation with Two Radicals:

1. **Isolate one of radical on *each side* of the equation.**
2. **Raise *both sides* to the power of the index.**
3. **Simplify and solve for the variable.**
4. **Check for extraneous solutions**

13. $\sqrt{x-4}=\sqrt{2x-3}$

14. $\sqrt[4]{6x-5}=\sqrt[4]{x+10}$

15. $2\sqrt[3]{10-3x}=\sqrt[3]{2-x}$

16. $\sqrt{x+2}-7=\sqrt{x+9}$

17. $\sqrt[4]{6x+25}=3\sqrt[4]{x}$

18. $\sqrt{x+9}-\sqrt{x}=\sqrt{3}$