Math 1 **10.4 Solving Radical Equations** Unit 6

Equations with radicals that have variables in the radicand are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. We solve these equations by raising each side of the equation to a power equal to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to eliminate that radical.

**Example 1:** Solve $\sqrt{3x}=\sqrt{x+6}$

**You Try!** Solve $(2x)^{\frac{1}{2}}=(x+5)^{\frac{1}{2}}$

**Example 2:** Solve $(7x+6)^{\frac{1}{2}}-(9+4x)^{\frac{1}{2}}=0$

**You Try!** Solve $\sqrt{3x+2}-\sqrt{2x+7}=0$

**Example 3:** Solve 

**You Try!** Solve 

**Identifying Equations with Extraneous Solutions**

Sometimes when we check radical equations, the solution *doesn’t work*. We call these types of solutions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example 4:** Solve 

**You Try!** Solve 

**Practice:** Complete the following problems in class for credit!

1. Solve$\sqrt{x+8}+9=5$
2. Solve $\sqrt{4x+1}-5=0$
3. Solve $3+\sqrt{2x-3}=8$
4. Solve $3\sqrt{6-3x}-6=0$
5. Solve 
6. Solve 
7. Solve $5(x+3)^{\frac{1}{2}}-1=24$
8. Solve $\left(3x\right)^{\frac{1}{2}}=\left(x+6\right)^{\frac{1}{2}}$
9. Solve $3\sqrt{4x+1}-6=3$
10. Solve 