### **5.8 Solving Radical Equations**

<u>Radical Equation</u>: an equation that contains radical expressions and/or rational exponents

<u>To Solve:</u> eliminate radicals or rational exponents and then solve resulting equation. Remember - check your solution(s)! It (they) may be extraneous!!

## **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

1.  $5 - \sqrt[4]{x} = 0$   $(5) = (4) \times 4$ 

### **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

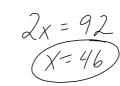
$$3x^{4/3} = 243$$

# **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

$$\sqrt{2x+8}-4=6$$

$$(\sqrt{2x+8})^{2}=(10)^{2}$$



### **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

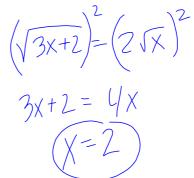
4. 
$$3(x+1)^{4/3} = 48$$

$$(x+1)^{4/3} = (16)^{3/4}$$

## **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

5. 
$$\sqrt{3x+2}-2\sqrt{x}=0$$



#### **Examples**

Solve each equation. SHOW ALL WORK!! Remember to check for extraneous solutions.

6. 
$$(\sqrt{x^2 + 5})^2 = (x + 3)^2$$

$$x^{2}+5=x^{2}+6x+9$$
 $5=6x+9$ 
 $6x=-4$ 
 $x=-2/3$