Name:_____   Date:_____

HW Pre-Calculus 11 Section 5.3 Solving Equations with Radicals:

1. Solve each of the following equations algebraically. Make sure you check for extraneous roots:

a) $\sqrt{3x+7} = 21$	b) $\sqrt{2x-5} - 10 = 0$
c) $5 - \sqrt{2x-11} = 3$	d) $2\sqrt{4x-1} + 8 = 16$
e) $\sqrt{x} + 2 = x$	f) $4\sqrt{x} - 4 = x$
g) $4 - x = \sqrt{x^2 - 8}$	h) $\sqrt{x^2 + 3} + x = 3$

i) $\sqrt{1+9x}+6=2x$	j) $\sqrt{7x^2-1}+1=3x$

2. What is an extraneous root? How can you check if an equation has an extraneous root?

3. Which of the following equations will have an extraneous root? Explain, Indicate Yes or NO

a) $\sqrt{3x+7}+10=0$	b) $\sqrt{2x+1}=-2x+1$
c) $-\sqrt{x}+9=0$	d) $\sqrt{3x+1}=2x+6$

4. Solve the following equations. Show all your work and steps:

a) $\sqrt{x+2}=\sqrt{2x+5}$	b) $x-12=\sqrt{x}$

c) $x = 2\sqrt{x} - 1$

d) $x = 3 - \sqrt{x^2 + 3}$

e) $\sqrt[3]{2x + 3} = 4$

f) $\sqrt[3]{(2x - 1)^2} = 9$

g) $\sqrt{x + 12} = 2 + \sqrt{x}$

h) $\sqrt{5x - 1} + 3\sqrt{x} = 1$

i) $\sqrt{2x + 4} = 3 + \sqrt{x - 5}$

j) $\sqrt{x} = \sqrt{x + 4} - 1$

k) $\sqrt{x+8} - \sqrt{x-7} = \sqrt{5}$	L) $\sqrt{3-x} - \sqrt{16+2x} = \sqrt{x+7}$
$2 + \sqrt{x-5} = \sqrt{2x-3}$	$\dfrac{2}{\sqrt{x+1}} = \sqrt{x} + \sqrt{x+1}$
$\sqrt{4-x} + \sqrt{x-9} = \sqrt{x-14}$	$\dfrac{3}{\sqrt{x}} - 5 = \dfrac{1-2\sqrt{x}}{\sqrt{x}}$

5. Solve for "c" in terms of "a" and "b" given that: $\sqrt{a + \dfrac{b}{c}} = a\sqrt{\dfrac{b}{c}}$