Name:_____ Date:_____

Pre Calculus 11 Ch3 Lesson 3 Part 2 Solving Equations with Two Radicals

1. Graph each of the following radical functions with the grid provided. Create the X and Y axis on your graph. Indicate where the radical function begins and which direction it points towards:

a) $y=\sqrt{3x+5}$

b) $y=\sqrt{7x+14}$

c) $y=\sqrt{-2x+6}$

d) $y=\sqrt{6x-5}$

e) $y=\sqrt{10-3x}$

f) $y=-\sqrt{7-2x}$

g) $y=-\sqrt{11x+5}$

h) $y=-\sqrt{-3x-4}$

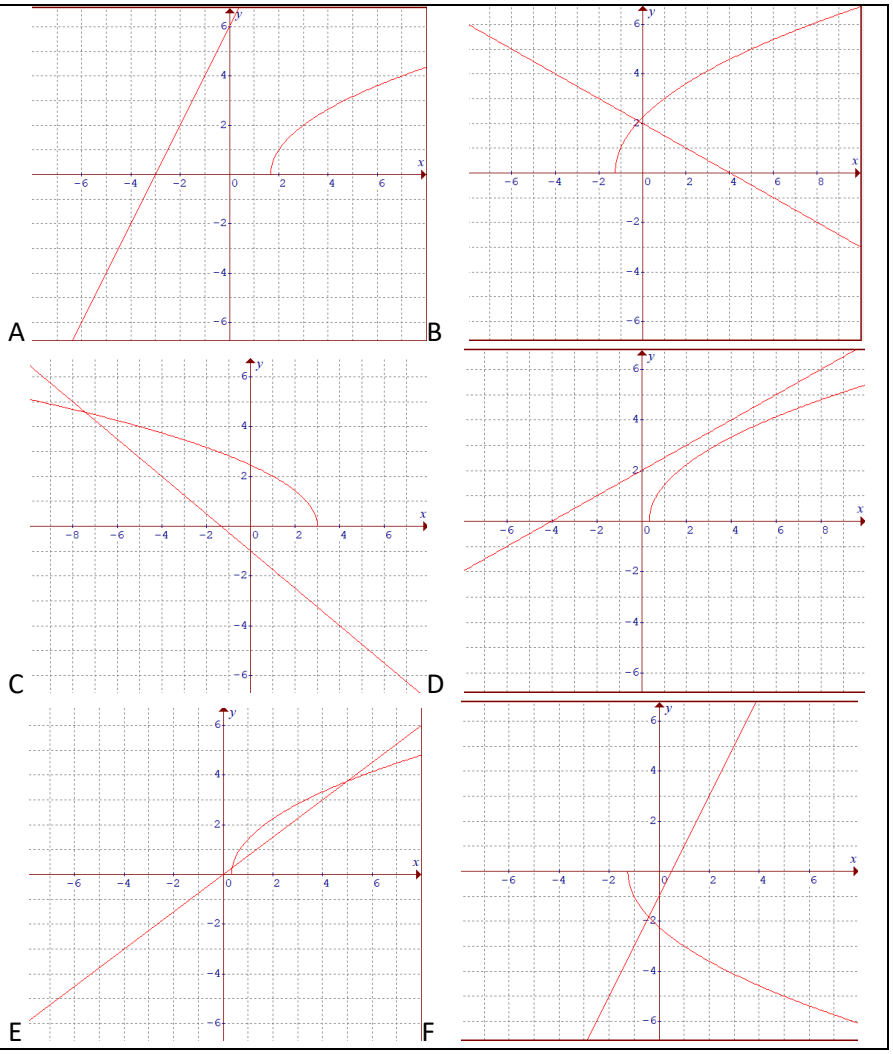
2. Match each equation with the corresponding graph. Indicate the number of solutions and extraneous roots:

a) $\sqrt{3x-5}=2x+6$

b) $\sqrt{4x+5}=-\frac{1}{2}x+2$

c) $\sqrt{6-2x}=-\frac{3}{4}x-1$

d) $\sqrt{3x-1}=0.5x+2$



3. Solve each of the following radical equations algebraically. Show all your work and steps:

a) $\sqrt{x-9}+\sqrt{x}=9$

b) $\sqrt{2x-1}=\sqrt{2x+15}-2$

c) $\sqrt{x+16}-\sqrt{x}=2$	d) $\sqrt{x+1}-\sqrt{x-6}=1$
e) $\sqrt{2x+11}-\sqrt{5x+1}=-1$	f) $\sqrt{3x+4}-\sqrt{2x-4}=2$
g) $\sqrt{2x}-\sqrt{x+1}=1$	h) $\sqrt{5x+6}+\sqrt{3x+4}=2$

4. Indicate how many solutions each of the following equations has. Indicate whether if there are any extraneous roots:

5. The number of bacteria in a swimming pool after disinfection can be modeled by the equation: $y = 5400\sqrt{0.025x + 0.21}$, where "x" is the number of minutes past. If disinfection started at 3pm, at what time will there be 2000 bacteria left in the pool?

6. Solve the following equation: $\sqrt{2x+8} = \sqrt{11-3x} - 4$. Show all your work and steps. Check for extraneous roots. If necessary use the quadratic formula to find your roots.

7. Graph the following radical function: $y = \sqrt{3x-8}$. Which of the linear equations below will have:
   a) 2 intersection points b) 1 intersection point c) No intersection points

a) $y = 3x + 1$

b) $y = x - 4$

c) $y = -0.5x + 4$

d) $y = -4x - 7$

e) $y = x - \frac{8}{3}$

f) $y = 0.5x - 1$

g) $y = -0.1x + 9$