Name:_____   Date:_____

Pre-Calculus 11 HW 4.4 The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad , \quad a \neq 0$$

1. Given each quadratic equation, indicate the values of the coefficients "a", "b" and "c":

a) $x^2 + 5x + 6 = 0$	b) $12x^2 + 7x - 3 = 0$	c) $-2x^2 - 7x + 5 = 0$
$a = $ _____ $b = $ _____ $c = $ _____	$a = $ _____ $b = $ _____ $c = $ _____	$a = $ _____ $b = $ _____ $c = $ _____
d) $4x^2 = 13x - 8$	e) $x(7 - 8x) = 10$	f) $x(x+2) = 6 - (x-3)(2x+1)$
$a = $ _____ $b = $ _____ $c = $ _____	$a = $ _____ $b = $ _____ $c = $ _____	$a = $ _____ $b = $ _____ $c = $ _____

2. Solve for "x" for each of the following by using the quadratic formula:

a) $x^2 - 5x + 6 = 0$	b) $3x^2 - x + 1 = 3$	c) $2x^2 - 3x - 1 = 0$
d) $-0.5x^2 + 4x + 12 = 0$	e) $-0.5x^2 + 3x = 6$	f) $-3x^2 = 12x - 5$

g) $3x(2x-6)=8$	h) $\dfrac{4x^2}{3}=4x-2$	i) $x^2-2=\dfrac{-7x}{2}$
j) $2x^3-5x^2+7x=0$	k) $2x^2+6x-8=7x^2-2x$	L) $2(2x-1)^2+9(2x-1)+7=0$

3. Under what conditions will the equation have no solutions? $ax^2+bx+c=0$ Explain why

4. Under what conditions will the equation have only one solution? $ax^2+bx+c=0$ Explain why

5. The revenue a company makes for selling shoes is given by the equation: $R=-8p^2+1200p$, where "R" is the revenue and 'p" is the price in dollars. At what price should the company sell their shoes to generate a revenue of $400,000?

6. Here are the steps that John used to solve the equation: $12x^2-7x-3=0$. Find the mistakes:

$L_1: x=-7\pm\dfrac{\sqrt{49^2-4(12)(3)}}{2(12)}$

$L_2: x=-7\pm\dfrac{\sqrt{2401-144}}{24}$

$L_3: x=-7\pm\dfrac{\sqrt{2257}}{24}$

$L_4: x=-7\pm1.9794955..$

$L_5: x_1=-7+1.9794955..=-5.0205...$

$L_6: x_2=-7-1.9794955..=-8.9794955...$