

Name: _____

Date: _____

Pre-Calculus 11 HW Lesson 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) $x^2 + 5x + 6 = 0$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$	b) $12x^2 + 7x - 3 = 0$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$	c) $-2x^2 - 7x + 5 = 0$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$
d) $4x^2 = 13x - 8$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$	e) $x(7 - 8x) = 10$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$	f) $x(x + 2) = 6 - (x - 3)(2x + 1)$ $a = \underline{\hspace{2cm}} b = \underline{\hspace{2cm}} c = \underline{\hspace{2cm}}$

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) $\frac{4x^2}{3}=4x-2$	i) $x^2-2=\frac{-7x}{2}$
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 \$40,000? At what price should he sell to generate a maximum revenue?

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

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

$$L_4 : x = -7 \pm 1.9794955..$$

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

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

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

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