Name:_____ Date:_____

Notes
Algebra Section 10.6
Pages 671-676

Goal: "You will solve quadratic equations using the quadratic formula"

SO FAR YOU CAN SOLVE QUADRATIC EQUATIONS BY:

1. **Factoring** ☺

2. **Graphing** ☹

3. **Square Roots** ☺

**Remember that in order to solve, you are really being asked to find x when… $y = 0$

Quadratic Formula: $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

Solve using the quadratic formula:

Ex: $3x^2 + 5x - 8 = 0$

$x = \frac{-5 \pm \sqrt{25-4(3)(-8)}}{2(3)}$

$x = \frac{-5 \pm \sqrt{25+96}}{6}$

$x = \frac{-5 \pm 11}{6}$

$x = 1, -\frac{8}{3}$

Ex: $2x^2 + 7x = 9$

$x = 1$ and -4.5

Ex: $x^2 - 8x = -16$

$x = 4$

Ex: $2x^2 - 7 = x$

$x = 2.14$ and -1.64

Ex: $3x^2 - 1 - x = 0$

$x = 0.77$ and -0.43

Ex: $3n^2 - 5n = -1$

$n = 0.23$ and 1.43

Ex: $4z^2 = 7z + 2$

$x = 2$ *and* $x = -\frac{1}{4}$

Ex: For the period 1971-2001 the number y, of films produced in the world can be modeled by the function $y = 10x^2 - 94x + 3900$, where x is the number of years since 1971. In what year were 4200 films produced?

$x = 12$ and $x = -3$ so 12 must be the answer, which means 12 years since 1971, which would be 1983

Ex: For the period 1990-2003, the number of book titles published by a small publishing company can be modeled by $y = 0.5x^2 + 4x + 19$, where x is the number of years since 1990. In what year were 80 books published?

x is about 8, which would be 1997, close to 1998