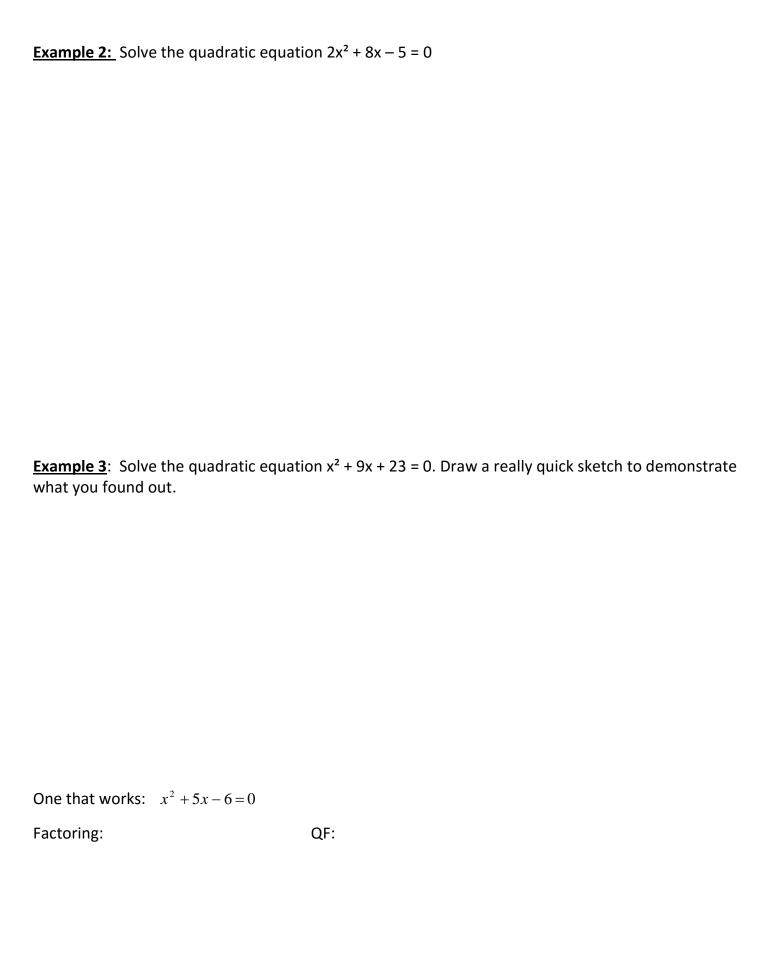## 7.7 - Using the Quadratic Formula

The quadratic equation $ax^2 + bx + c = 0, \ a \neq 0$ has the roots

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

Before we get started, a few helpful hints:

Example 1: Solve the quadratic equation $4x^2 - 3 = 7x$. Give an exact answer and an approximate answer to 3 decimal places.

Example 2: Solve the quadratic equation $2x^2 + 8x - 5 = 0$

Example 3: Solve the quadratic equation $x^2 + 9x + 23 = 0$. Draw a really quick sketch to demonstrate what you found out.

One that works: $x^2 + 5x - 6 = 0$

Factoring: QF:

Working with a partner, write the steps to solve this problem.

A store rents an average of 750 video games each month at a current rate of $4.50. The owners of the store want to raise the rental rate to increase the revenue to $7000 per month. However, for every $1 increase, they know that they will rent 30 fewer games each month. The following function relates the price increase, p, to the revenue, r.

$$(4.5 + p)(750 - 30p) = r$$

Can the owners increase the rental rate enough to generate revenue of $7000 per month?