Def: A **polynomial equation** is an equation involving two or more polynomials.

Ex:

*Def:* A second-degree equation of the form where are real numbers and , is called a ***quadratic equation***. is the standard form of a quadratic equation.

## Solving Quadratic Equations and the Zero Factor Property (Principal of Zero Products)

*Zero Factor Property*

For all real numbers and , if , then either or (or both).

Is it true that if , then either or (or both)?

Then is it true that if , then either or (or both)?

Ex: Solve:

Ex Find all the roots and check your answers.

1. (indicate in answer “double root” or the root has multiplicity 2)

Solutions:

Ex 5.8.58 Given that , find such that

Ex 5.8.62 If , find all x-values for which .

Ex Find the domain of the function

Function exist when denominator So find when

Ex 5.8.58 During halftime at the Super Bowl, one of the performers will sing on a triangular platform that measures 12 square yards. The base of the triangular stage is 2 yards longer than it is wide. What are the dimensions of the triangular stage?

Let

Let

Ex 7 5.8.94 During intermission at a River Cats game, the air cannon shoots hot dogs (wrapped in plastic wrap) into the stands. The height in feet of an airborne hotdog seconds after being launched can be approximated by the function

a) If the dog is caught by a fan on its way down 10 feet above the ground, how long was it in the air?

b) How high will the dog be after 1 second?