

CONCEPT The five methods of solving a quadratic equation are factoring, using the square roots, completing the square, graphing, and the quadratic formula. Using a graphing calculator or using a calculator and the quadratic equation are the most common methods to solve these equations. The other methods are exercises that will help students understand the fundamental theory behind the later 2 solving processes.

BACKGROUND

Around 2000 (or so) BC, Egyptian, Chinese, and Babylonian engineers knew how the area of a square scales with the length of its side. The origin of the quadratic equation is often traced back to these ancient cultures with problems being solved by each of these civilizations ultimately leading to the mathematical expression of the quadratic formula we know today. Today's formula allows for people to solve the quadratic relationship for either the two real solutions, one unique solution, or even two imaginary solutions. These methods are applied to numerous real-world examples throughout many everyday applications.

REAL WORLD CONNECTIONS

Military, space and projectile research careers all look at the basic concept of throwing a ball (or shooting an arrow, firing a missile or throwing a stone) into the air and then observing its rate of ascent, slowing as it travels, then its rate of descent as it accelerates to the ground. A quadratic equation tells you its position at all times.

