***Quadratic Equations in Context***

1. Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function , where is the time in seconds and is the height in feet.
   * Jason hit the water after how many seconds?
2. If a toy rocket is launched vertically upward from ground level with an initial velocity of 128 feet per second, then its height after seconds is given by the equation (if air resistance is neglected).
   * How long will it take for the rocket to return to the ground?
3. A rocket is launched from atop a 101-foot cliff with an initial velocity of 116 f/s.
   * Substitute the values into the vertical motion formula Let .
   * Use the quadratic formula to find out how long the rocket will take to hit the ground after it is launched. Round to the nearest tenth of a second.
4. A ball is thrown upward from a height of 15 ft. with an initial velocity of 5 ft/s. Use the formula to find how long it will take for the ball to hit the ground.
   * What is the formula?
   * How long will it take to hit the ground?
5. A diver is standing on a platform 24 ft. above the pool. He jumps from the platform with an initial upward velocity of 8 ft./s. Use the formula , where is the height above the water, is the time, is his starting upward velocity, and is the starting height.
   * How long will it take for him to hit the water?