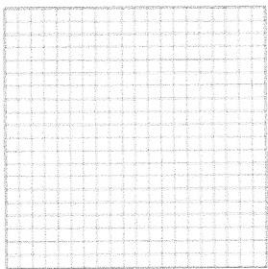
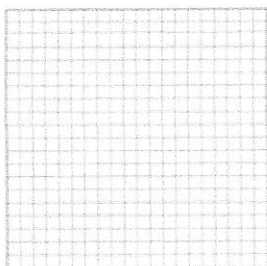


Models for Quadratic Inequalities

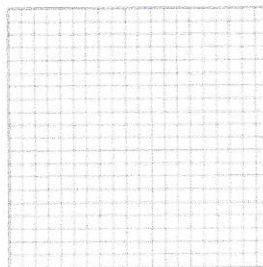
1. When a baseball is hit by a batter, the height of the ball, $h(t)$, at time t , $t \geq 0$, is determined by the equation $h(t) = -16t^2 + 64t + 4$. For which interval of time is the height of the ball greater than or equal to 52 feet?



2. A small rocket is launched from a height of 72 feet. The height of the rocket in feet, h , is represented by the equation $h(t) = -16t^2 + 64t + 72$, where $t =$ time, in seconds. Graph this equation on the accompanying grid. Use your graph to determine the number of seconds that the rocket will remain at or above 100 feet from the ground.



3. The height of a projectile is modeled by the equation $y = -2x^2 + 38x + 10$, where x is time, in seconds, and y is height, in feet. During what interval of time, to the nearest tenth of a second, is the projectile at least 125 feet above ground?



4. The profit a coat manufacturer makes each day is modeled by the equation $P(x) = -x^2 + 120x - 2000$, where P is the profit and x is the price for each coat sold. For what values of x does the company make a profit?

