

## Flight of a Projectile Activity

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Name: \_\_\_\_\_

Period: \_\_\_\_\_

A projectile's height is defined by:  $h(t) = -16t^2 + v_0t + h_0$ , where  $v_0$  is the initial velocity (ft/sec) and  $h_0$  is the initial height (feet). Use the given information to (a) sketch a diagram, (b) write an equation, (c) locate the maximum height of the projectile, (d) determine the time it takes to reach its maximum height, and (e) calculate the time at which the projectile hits the ground. [Use MATHguide's online lesson](#) for help.

1) Jorge was standing at ground level and said he threw a ball straight up into the air at 250 feet/sec.

2) Jackie tossed a softball to Jessica. The ball had an initial upward velocity of 30 ft/sec and Jackie was standing on at an open window, 20 feet above ground level.

3) Yesenna had a rubber ball and threw it over the side of a building. It was traveling upwards at 40 ft/sec and the top of the building was 30 floors tall (each floor was ten feet).

4) Daniela threw a tennis ball to Naquesha going up at 90 ft/sec. Naquesha was standing at the window of a building 80 feet high. How long did it take for the ball to reach Naquesha? There are two possible answers. Find both answers.