V63.0005.002, Spring 2002 Mathematical Thinking Chris Wendl

Quiz 7

Answer questions on this paper or on a separate sheet. Show your work wherever appropriate.

1. Remember when Isaac tossed a hammer up into the air and measured the details of its fall? He found that the height of the hammer in feet above the ground after t seconds was given by the function

$$h(t) = -16t^2 + 12t + 4.$$

(a) Sketch a graph of this function. Label the coordinates of the vertex and any two other points.

(b) When Isaac initially threw the hammer, it was moving upward. What was the maximum height it reached before falling down again, and when did it reach this height?

2. [EXTRA CREDIT] Solve the inequality $4 > -16x^2 + 12x + 4$.