

4. [15 points] A load of bricks is being lifted by a crane at a constant speed of 5.6 m/s. A brick falls off the stack. The fallen brick's height, in meters above the ground, t seconds after falling off the stack is given by $h(t) = 15.4 + 5.6t - 4.9t^2$.

Throughout this problem, remember to include units and show your work and/or explain your reasoning clearly. (Recall Instruction #7 from the front page.) All answers should be given either in exact form or to at least two decimal places.

- a. [2 points] How high above the ground was the brick when it fell off the stack?

- b. [3 points] How long does it take for the brick to hit the ground?

- c. [3 points] When does the brick reach its highest point?
How high above the ground is the brick at that time?

- d. [3 points] Find the domain and range of the function h in the context of this problem.

Domain: _____ **Range:** _____

- e. [4 points] The supervisor of the construction site sees the brick fall as it passes in front of his office window, which is at a height of 3 meters above the ground. How much time passes between when the supervisor sees the brick and when the brick hits the ground?