Math 106-350/550 **Homework #4** **15 Sept '06**

Due 10 Sept, at start of recitation. Write up your solution carefully, including units.

. 10 1. Someone tosses a tomato straight up in the air. The height of the tomato is $s = 3 + 25t - 4.9t^2$ meters after t seconds, ignoring air resistance.

   (a) Give the velocity and acceleration of the tomato.

   (b) What is the average velocity of the tomato in the first 2 seconds and the (instantaneous) velocity at $t = 2$?

   (c) How high does the tomato go?

   (d) How long is the tomato in the air?

   (e) If the tomato was tossed upward on Mars, where $g = 3.72\,\mathrm{m/sec^2}$, what would be the formula for the height of the tomato? (As with all questions, you should explain clearly and briefly how you obtained your formula.)