Problem 1  [3 pts] A golfer stands 5 m above the fairway and drives a golf ball with an initial velocity of $v_0 = \langle 0, 20, 49 \rangle \text{ m/s}$. The golfer wishes to impart slice to the golf ball, which is modeled by an acceleration of $1.2 \text{ m/s}^2$ in the $\hat{x}$ direction. Thus, the acceleration function is given by:

$$\vec{a}(t) = \langle 1.2, 0, -9.8 \rangle.$$ 

Assuming $\vec{r}(0) = \langle 0, 0, 5 \rangle$, determine:

a) [2 pts] The velocity and position functions.

b) [1 pt] The maximum height of the golf ball.

c) [1 pt] The range of the shot; that is, the distance between where the ball lands and $\langle 0, 0, 0 \rangle$. 