

## Summary

First we consider the result with constant velocity, that is  $v(t) = 0$ . Here we can apply the very strict boundary condition,  $x(t) = 0$  is applied. It is possible, because there is no solution for (5) will be obtained. The maximum limit of the missile acceleration command is selected as  $100 \text{ m/s}^2$ . The Initial missile position is between 10000m to 3000m. Initial missile velocity  $v(0) = 400 \text{ m/s}$ , initial missile heading angle  $\bar{\psi} = 60 \text{ deg}$ . Target position  $(0, 0) \text{ m}$  Desired impact time  $t$  will be 37 s. In order to verify the performance of the proposed guidance, secondly we assume that the missile velocity  $v(t)$  is 300m/s, and the vertical distance 100m and  $\bar{\psi}$  as 5deg, respectively. The flight time  $t$  is chosen as 10sec.

When we apply a high velocity on a short distance, the lander flies over the landing site shortly after powered descending. when we decrease the initial velocity, it reach the site at 230s.