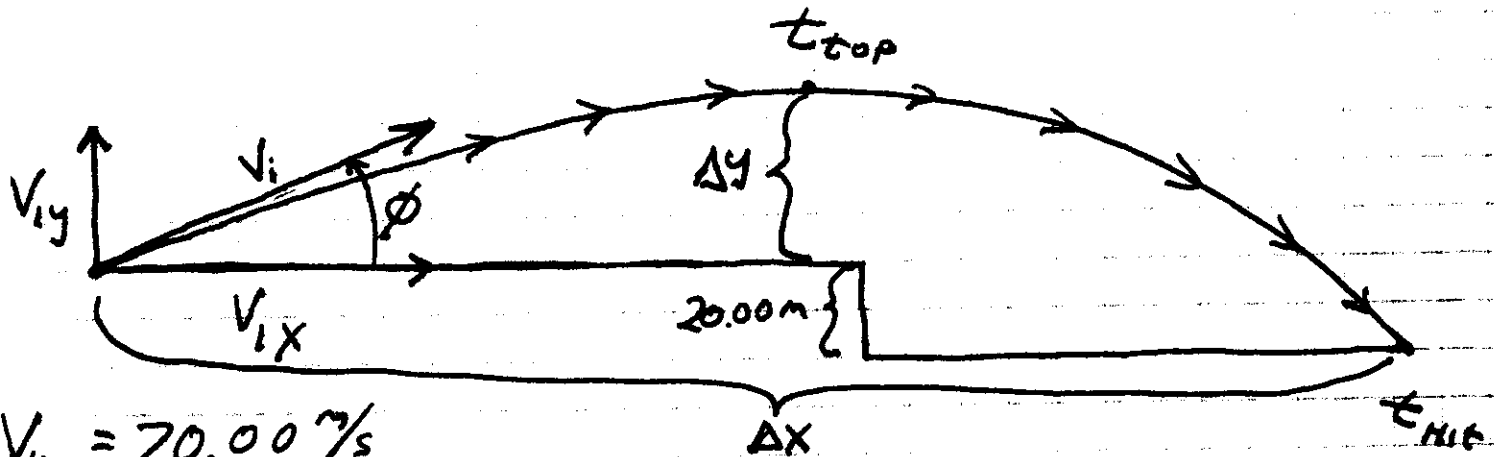


20080204\_1008

Name Key



$V_{ix} = 70.00 \text{ m/s}$

$V_{iy} = 30.00 \text{ m/s}$

$V_i = \sqrt{5800} \text{ m/s}$

$V_i^2 = V_{ix}^2 + V_{iy}^2 = 70^2 + 30^2 = 4900 + 900 = 5800$   
 $V_i = \sqrt{5800} = 76.15773106 \text{ m/s}$

$V_y^0 = V_i + at \quad t = \frac{-V_i}{a} = \frac{-30}{-9.8} = 3.06122449 \text{ sec}$

$t_{top} = \frac{150}{49} \text{ sec} \quad V_y^0 = V_i^2 + 2a\Delta y \quad \Delta y = \frac{-V_i^2}{2a} = \frac{-30^2}{-19.6} = \frac{900}{19.6} = \frac{9000}{196} = \frac{2250}{49}$

$\Delta y = 45.91836735 \text{ m}$

$\Delta y = \frac{2250}{49} \text{ m}$

Dist to Fall from top =  $\Delta y + 20$   
 $= 65.91836735$

$t_{hit} = 6.729 \text{ sec} \quad t_{hit} = 3.06122449 + 3.66779607 = 6.72902046$

$\tan \phi = \frac{3}{7} = .42857$

$\tan \phi = \frac{3}{7}$

$\phi = 23.199 \text{ deg}$

From top  
 $\Delta y = V_y^0 t + \frac{1}{2} at^2$

$t^2 = \frac{2\Delta y}{a} = \frac{2(65.91836735)}{9.8}$

$t^2 = \frac{131.8367347}{9.8} = 13.452$

$t = \sqrt{\quad} = 3.667796073$