- A small missile is fired with a velocity of 300. m/s at an angle of 30.0 degrees from the ground. The missile returns to the level ground. (Neglect air resistance).
- A) Determine the initial horizontal and initial vertical components of the velocity.

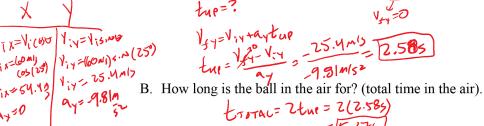
Vix=Vi(650=(300 mg) 605 300 = [260 m/s] Viy=Visin0=(300 m/s) 500 = [150 m/s]

B) Determine the maximum height of the missile above the ground. V+12=V:42+ Zaydy

drizontal range of the missile above the ground. $\frac{1}{\sqrt{1 + 200}} = \frac{1}{\sqrt{1 + 200}}$ $\frac{1}{\sqrt{1 + 200}} = \frac{1}{\sqrt{1 + 200}}$ $\frac{1}{\sqrt{1 + 200}} = \frac{1}{\sqrt{1 + 200}}$ $\frac{1}{\sqrt{1 + 200}} = \frac{1}{\sqrt{1 + 200}}$ orizontal range of the missile

 $d_{x}=?$ $d_{x}=V_{1}xt_{70TM}=(260 \text{ m/s})(30,65)=790 \text{ m}$ $d_{x}=V_{1}xt_{70TM}=(260 \text{ m/s})(30,65)=790 \text{ m}$ $d_{x}=V_{1}xt_{70TM}=(260 \text{ m/s})(30,65)=790 \text{ m}$ $d_{x}=V_{1}xt_{70TM}=(260 \text{ m/s})(30,65)=790 \text{ m}$ C) Determine the horizontal range of the missile V_{fy=V; y+aytup}
tup=\frac{150 m/y}{ay} = \frac{-150 m/y}{-9.81 m/s} = \frac{15.33}{-15.33}

- 3. Payton Mellon throws a football with a velocity of 60.0 m/s at 25.0 degrees.
 - A. Calculate the time it takes to reach the maximum height.



C. Calculate the horizontal distance (range) it traveled during the entire flight. $d_{x}=V_{x}+\sum_{\sigma \in A}(s^{A,A}\omega_{s})(s^{A,A})$ = 281

D. Calculate the maximum height of the football.

V+12=Viy2 + Zaydy $d_{Y} = \frac{1}{2} \frac{1}$

E. What would happen to **each** of the following if he threw it at the same speed, but at an angle of 70°? (Increase, decrease, or remain the same)

A) v_{ix} : \checkmark B) v_{iy} : \uparrow C) maximum height $\bigvee_{i,y} \bigvee_{i,y} \bigvee_{i,y}$

D) total flight time \\^{\(\sigma \)

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