Yage Ango

Jack Graham

Rylan skelton

Jimmy Millmore

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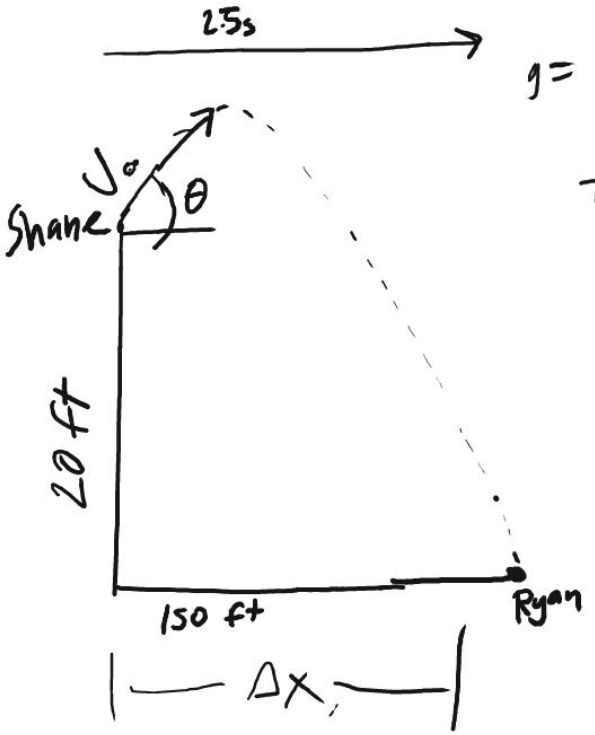
Problem #2



Known:

$g = a_y = -32.2\ ft/s^2$

$t = 2.5$

$V_{0x} = V_0 \cos(\theta)$

$V_{0y} = V_0 \sin(\theta)$

$\Delta x = V_0 t$

$\Delta x = V_0 \cos\theta\, t$

$\frac{150}{2.5} = \frac{V_0 \cos\theta (2.5)}{2.5}$

$V_0 \cos\theta = 60$

$V_0 = \frac{60}{\cos\theta}$

$V_0 = \frac{60}{\cos(53.3)} = \boxed{100.4\ ft/s}$

$V_{f,y} = V_{0,y} + at$

$0 = V_{0,y} + gt$

$V_{0,y} = -gt$

$V_0 \sin\theta = -gt$

$\frac{60\sin\theta}{\cos\theta} = -gt$

$60\tan\theta = -gt$

$\theta = \tan^{-1}\left(\frac{-gt}{60}\right) = 53.3^\circ$