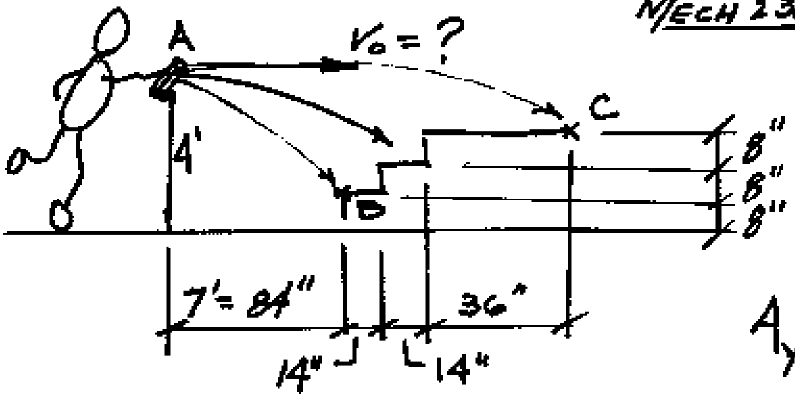
MECH 236

PROB 11.99



NEWSPAPER LANDS BETW. B & C.

RANGE OF VALUES for V_0 ?

$A_y = 386 \frac{in}{s^2} = 32.2 \frac{ft}{s^2} \downarrow$

Use pt. A as your ref. or ORIGIN $\therefore$ $t_0 = 0$, $X_0 = 0$, $Y_0 = 0$

CURVILINEAR MOTION

$X_f = \cancel{X_0} + V_{0x} t + \cancel{\tfrac{1}{2} A_x t^2}$ $\qquad$ $Y_f = \cancel{Y_0} + \cancel{V_{0y}} t + \tfrac{1}{2} A_y t^2$

$X_f = V_{0x} t$ $\qquad$ $Y_f = -\tfrac{1}{2}(32.2) t^2$

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at pt. B: $Y_f = -(48" - 8") = -\tfrac{1}{2}\left(386 \frac{in}{s^2}\right) t^2$

$-40"\left[\frac{-2}{386}\right] = t^2$ $\qquad$ $t = 0.455$ sec.

SUB. INTO $X_f = V_{0x} t$

$\frac{7'}{0.455 \text{ sec.}} = V_{0x}$ $\qquad$ $\boxed{V_{0x} = 15.376 \frac{ft.}{sec.}}$ To REACH pt. B.

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at pt. C: $Y_f = -(48" - 24") = -\tfrac{1}{2}\left(386 \frac{in}{s^2}\right) t^2$

$-24\left[\frac{-2}{386}\right] = t^2$ $\qquad$ $t = 0.353$ sec.

SUB. INTO $X_f = V_{0x} t$

$\frac{[84" + 14" + 14" + 36"]}{0.353 \text{ sec.}} = V_{0x} = 419.696 \frac{in}{s} = 34.97 \frac{ft.}{sec.}$

$\boxed{V_{0y} = 35 \frac{ft}{sec}}$ To REACH pt. C

Find WHEN, then the VELOCITY.

SHE MUST THROW BETW. $15.376 \frac{ft.}{sec.}$ and $35 \frac{ft}{sec.}$ FOR THE PAPER TO LAND BETW. B & C.

HW by MILANO