



- STRAIGHT HORIZ. PATH OF PLANE
- TARGET AT B
- WHERE TO RELEASE WATER, $d = ?$

HINT: FIND WHEN TO RELEASE WATER.

USE THE PLANE AS REF. PT. OR ORIGIN OF X-Y AXES.

HORIZONTAL MOTION

$$v_0 = 315 \frac{\text{km}}{\text{h}} \times \frac{\text{h}}{3600 \text{ sec.}} \times \frac{10^3 \text{ m}}{\text{km}} = 87.5 \frac{\text{m}}{\text{s}}$$

$$d = X = X_0 + v_0 t + \frac{1}{2} a t^2 \quad \text{where } \left. \begin{array}{l} X_0 = 0 \\ a = 0 \end{array} \right\} \text{ need } t$$

VERTICAL MOTION

$$Y = y_0 + v_0 t + \frac{1}{2} a t^2 \quad \text{where } \left. \begin{array}{l} y_0 = 0 \\ v_0 = 0 \\ a = \text{gravity} \end{array} \right\}$$

$$-80 \text{ m} = -\frac{1}{2} (9.81 \frac{\text{m}}{\text{s}^2}) t^2$$

$$t = 4.038 \text{ sec.} \quad \text{BACK SUB.}$$

$$d = (87.5 \frac{\text{m}}{\text{s}}) (4.038 \text{ sec.}) = 353.373 \text{ m.}$$

$$\boxed{d = 353 \text{ m.}}$$

(PRECISION DEPENDS ON APPLICATION)

THINK: PROJECTILE AT INCLINED ANGLE TANGENT TO CURVED PATH.

\therefore HOR. + VERT. COMPONENTS

SIGN CONVENTION!