

Semana 4

$$1) a) V_{ox} = (9 \text{ m/s}) (\cos 40^\circ) = 6.89 \text{ m/s}$$

$$V_{oy} = (9 \text{ m/s}) (\sin 40^\circ) = 5.79 \text{ m/s}$$

$$t_s = \frac{V_{oy}}{g}$$

$$t_s = \frac{5.79 \text{ m/s}}{9.8 \text{ m/s}^2} = 0.59 \text{ seg}$$

$$H_{\max} = \frac{(-V_{oy})^2}{2g}$$

$$H_{\max} = \frac{(-5.79 \text{ m/s})^2}{2(-9.8 \text{ m/s}^2)} = 1.71 \text{ m}$$

$$Y = 1.71 \text{ m} + 30 \text{ m/s} = 31.71 \text{ m}$$

$$t_c = \sqrt{\frac{2y}{g}}$$

$$t_c = \sqrt{\frac{2(31.71 \text{ m})}{9.8 \text{ m/s}^2}} = 2.54$$

$$t_v = t_s + t_c$$

$$t_v = 0.59 \text{ seg} + 2.54 = 3.13 \text{ seg}$$

$$X = V_{ox} t_v$$

$$X = (6.89 \text{ m/s})(3.13 \text{ seg})$$

$$X = \underline{21.57 \text{ m}}$$

2) a) $V_{oy} = (20 \text{ m/s}) (\sin 37^\circ) \quad -12.03 \text{ m/s}$

$$H_{\max} = \frac{(-V_{oy})^2}{2g}$$

$$H_{\max} = \frac{(-12.03 \text{ m/s})^2}{2(-9.8 \text{ m/s}^2)}$$

$$\underline{H_{\max} = 7.38 \text{ m}}$$

b) $t_s = \frac{-V_{oy}}{g}$

$$t_s = \frac{-12.03 \text{ m/s}}{-9.8 \text{ m/s}^2} = 1.23 \text{ sec}$$

$$t_v = 2t_s$$

$$t_v = 2(1.23 \text{ sec}) = \underline{t_v = 2.46 \text{ sec}}$$

c) $V_{ox} = (20 \text{ m/s}) (\cos 37^\circ) \quad 15.97 \text{ m/s}$

$$X = V_{ox} t_v$$

$$X = (15.97 \text{ m/s}) (2.46 \text{ sec})$$

$$\underline{X = 39.29 \text{ m}}$$

$$3) a) V_{oy} = (20 \text{ m/s}) (\sin 50^\circ) \quad 15.32 \text{ m/s}$$

$$t_s = \frac{-V_{oy}}{g}$$

$$t_s = \frac{-15.32 \text{ m/s}}{-9.8 \text{ m/s}^2} = 1.56 \text{ seg}$$

$$t_v = 2(1.56 \text{ seg})$$

$$t_v = \underline{3.12 \text{ seg}}$$

$$b) H_{\max} = \frac{(-V_{oy})^2}{2g}$$

$$H_{\max} = \frac{(-15.32 \text{ m/s})^2}{2(9.8 \text{ m/s}^2)}$$

$$H_{\max} = \underline{11.97}$$

$$c) V_{ox} = (20 \text{ m/s}) (\cos 50^\circ) \quad 12.86 \text{ m/s}$$

$$X = V_{ox} t_v$$

$$X = (12.86 \text{ m/s}) (3.12 \text{ seg})$$

$$X = \underline{40.12 \text{ m}}$$

4) a, b y c son las mismas respuestas que la del 3

$$d) V_{oy} = (20 \text{ m/s}) (\sin 40^\circ) \quad 12.86 \text{ m/s}$$

$$t_s = \frac{12.86 \text{ m/s}}{9.8 \text{ m/s}^2} = 1.31 \text{ seg}$$

$$t_v = 2 t_s$$

$$t_v = 2(1.31 \text{ seg}) \quad 2.62 \text{ seg}$$

$$V_{ox} = (20 \text{ m/s}) (\cos 40^\circ) \quad 15.32 \text{ m/s}$$

$$X = V_{ox} t_v$$

$$X = (15.32 \text{ m/s}) (2.62 \text{ seg})$$

$$X = \underline{40.14 \text{ m}}$$

$$5) a) V_{oy} = (30 \text{ m/s}) (\sin 40) = 19.29 \text{ m/s}$$

$$t_s = -$$

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$$5) a) V_{oy} = (30 \text{ m/s}) (\sin 40) = 19.29 \text{ m/s}$$

$$t_s = \frac{-V_{oy}}{g}$$

$$t_s = \frac{-19.29 \text{ m/s}}{-9.8 \text{ m/s}^2}$$

b)

$$t_s = 1.97 \text{ sec}$$

$$t_u = 2 t_s$$

$$t_r = 2(1.97 \text{ sec}) = \underline{T_v = 3.94 \text{ sec}}$$

$$c) H_{\max} = \frac{(-V_{oy})^2}{2g}$$

$$H_{\max} = \frac{(-19.29 \text{ m/s})^2}{2(9.8 \text{ m/s}^2)}$$

$$\underline{H_{\max} = 18.98 \text{ m}}$$

$$d) V_{ox} = (30 \text{ m/s}) (\cos 40) = 22.98 \text{ m/s}$$

$$X = V_{ox} T_v$$

$$X = (22.98 \text{ m/s})(3.94 \text{ sec})$$

$$\underline{X = 90.54 \text{ m}}$$

$$6) a) V_{oy} = (40 \text{ m/s}) (\sin 45^\circ) = 28.28 \text{ m/s}$$

$$t_s = \frac{-V_{oy}}{g}$$

$$t_s = \frac{-28.28 \text{ m/s}}{-9.8 \text{ m/s}^2} = 2.86 \text{ sec}$$

$$t_v = 2 t_s$$

$$t_v = 2(2.86 \text{ sec})$$

$$t_v = \underline{5.71 \text{ sec}}$$

$$b) H_{\max} = \frac{(-V_{oy})^2}{2(g)}$$

$$H_{\max} = \frac{(-28.28 \text{ m/s})^2}{2(-9.8 \text{ m/s}^2)}$$

$$H_{\max} = \underline{40.80 \text{ m}}$$

$$c) V_{ox} = (40 \text{ m/s}) (\cos 45^\circ) = 28.28 \text{ m/s}$$

$$X = V_{ox} t_v$$

$$X = (28.28 \text{ m/s})(5.71 \text{ sec})$$

$$X = \underline{161.18 \text{ m}}$$