

Scmana 4

$$1) a) V_{0x} = (9 \text{ m/s}) (\cos 40^\circ) = 6.89 \text{ m/s}$$

$$V_{0y} = (9 \text{ m/s}) (\sin 40^\circ) = 5.79 \text{ m/s}$$

$$t_s = \frac{V_{0y}}{g}$$

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

$$H_{\text{max}} = \frac{(-V_{0y})^2}{2g}$$

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

$$y = 1.71 \text{ m} + 30 \text{ m} t_s = 31.71 \text{ m}$$

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

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

$$t_v = t_s + t_c$$

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

$$X = V_{0x} t_v$$

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

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

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

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

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

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

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

$$t_s = \frac{-12.03 \text{ m/s}}{-9.80 \text{ m/s}^2} = 1.23 \text{ seg}$$

$$t_v = 2t_s$$

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

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

$$x = v_{ox} t_v$$

$$x = (15.97 \text{ m/s})(2.46 \text{ seg})$$

$$x = 39.29 \text{ m}$$

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

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

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

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

$$t_u = 3.12 \text{ seg}$$

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

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

$$H_{\max} = 11.92$$

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

$$X = v_{ox} t_u$$

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

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

Los ejercicios a, b, c son las mismas respuestas que la del 3

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

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

$$t_v = 2t_g$$

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

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

$$X = v_{ox} t_v$$

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

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