

Semana 22

$$1) \theta = 40^\circ \quad V_0 = 9 \text{ m/s} \quad y = 30 \text{ m}$$

$$V_{0x} = -9 \text{ m/s} \cdot \cos 40^\circ = 6.89 \text{ m/s}$$

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

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

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

$$t_s = 0.59 \text{ seg}$$

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

$$t_c = \frac{\sqrt{63.42 \text{ m}}}{9.8 \text{ m/s}}$$

$$t_c = \sqrt{6.47 \text{ s}}$$

$$t_c = 2.54 \text{ s}$$

$$H_{\max} = \frac{V_{0y}^2}{2 \times 9.8 \text{ m/s}^2}$$

$$H_{\max} = 1.7 \text{ m}$$

$$x = V_{0x} \cdot t_u = t_u = t_s + t_c =$$

$$t_u = 3.13 \text{ seg}$$

$$x = 6.89 \text{ m/s} \cdot 3.13 \text{ seg}$$

$$x = 21.57$$

$$2) \theta = 37^\circ$$

$$v_0 = 20 \text{ m/s}$$

$$v_{0x} = 15.97 \text{ m/s}$$

$$v_{0y} = 12.04 \text{ m/s}$$

$$t_{\text{max}} = \frac{v_y - v_{0y}}{2g}$$

$$t_{\text{max}} = \frac{0 - 12.04}{-19.6}$$

$$t_{\text{max}} = \frac{144.96 \text{ m}^2/\text{s}^2}{-19.6 \text{ m/s}^2}$$

$$a = H_{\text{max}} = 7.40 \text{ m}$$

$$t_s = v_{0y} / g$$

$$t_u = t_s \cdot 2$$

$$t_s = 1.23 \text{ seg}$$

$$b = t_u = 2.46 \text{ seg}$$

$$x = v_{0x} \cdot t_u$$

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

$$3) \theta = 50^\circ \quad v_0 = 20 \text{ m/s}$$

$$v_{0x} = 12.86 \text{ m/s}$$

$$v_{0y} = 15.32 \text{ m/s}$$

$$H_{\max} = \frac{v_0^2 - v_{0y}^2}{2g}$$

$$H_{\max} = \frac{20^2 - 15.32^2}{2 \cdot 9.8}$$

$$H_{\max} = \frac{234.70 \text{ m/s}^2}{19.6 \text{ m/s}^2}$$

$$b = H_{\max}$$

$$b = H_{\max} = 11.97 \text{ m}$$

$$t_s = v_{0y} / g \quad t_s = 1.56 \text{ s} \quad t_v = 2t_s$$

$$t_v = t_u = 3.12 \text{ s} \quad x = v_{0x} \cdot t_v$$

$$c = x = 40.12 \text{ m}$$

$$4) \theta = 50^\circ \quad v_0 = 20 \text{ m/s}$$

$$v_{0x} = 12.86 \text{ m/s}$$

$$v_{0y} = 15.32 \text{ m/s}$$

$$t_s = 1.56 \text{ seg} \quad t_u = 2 \text{ s}$$

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

$$H_{\max} = 11.97 \text{ m} \quad X = v_{0x} t_u$$

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

$$\text{Angulo} = 40^\circ$$

$$v_{0x} = 15.32 \text{ m/s}$$

$$v_{0y} = 12.86 \text{ m/s}$$

$$t_s = v_{0y} / g \quad t_s = 1.3 \text{ s} \quad t_u = 1.2 \text{ s}$$

$$t_u = 2.62 \quad X = 40.13 \text{ m}$$

$$5) \theta = 40$$

$$v_0 = 30 \text{ m/s}$$

$$v_{0x} = 22.98 \text{ m/s}$$

$$v_{0y} = 19.28 \text{ m/s}$$

$$t_s = v_{0y} \div g \quad t = 1.97$$

$$a = t_u = 3.94$$

$$b = t_s = 1.97 \text{ s} \quad H_{\max} \frac{v_{0y}^2 = v_{0y}^2}{2g}$$

$$H_{\max} = \frac{371.72 \text{ m}^2/\text{s}^2}{19.6 \text{ m/s}^2}$$

$$c = H_{\max} = 18.97 \text{ m}$$

$$x = v_{0x} \cdot t_u \quad d = x = 90.54 \text{ m}$$

$$\alpha = \theta = 45^\circ$$

$$V_0 = 20 \text{ m/s}$$

$$V_{0x} = 28.28 \text{ m/s}$$

$$V_{0y} = 28.28 \text{ m/s}$$

$$t_s = 2.825 \text{ s} \quad a = t_u = 5.78$$

$$H_{\max} = \frac{v_y^2 - v_{0y}^2}{2g}$$

$$H_{\max} = \frac{799.76}{19.6}$$

$$\bullet = H_{\max} = 40.80 \text{ m} \quad C = X = 163.46 \text{ m}$$