

b)

$$R = \frac{v_0^2}{3g} + \frac{2}{3}$$

$$\frac{1}{3}R = \frac{v_0^2}{3g}$$

$$gR = v_0^2$$

$$\sqrt{gR} = v_0$$

$$\sqrt{9.83 * 5} = v_0$$

$$= \underline{\underline{7.01 \text{ m/s}}}$$

b)

$$y_c = \frac{v_c^2}{3g} + \frac{2}{3}R$$

$$y_c = \frac{2}{9.81} + \frac{2}{3}5m$$

$$y_c = \frac{2}{9.81} + \frac{10}{3}m = \underline{\underline{3.43m}}$$