

2/40

$$a = g - cy^2 = v \frac{dv}{dy}$$

$$\int_0^{y_m} (g - cy^2) dy = \int_{v_0}^0 v dv$$

$$\left(gy - c \frac{y^3}{3} \right) \Big|_0^{y_m} = \frac{v^2}{2} \Big|_{v_0}^0$$

$$gy_m - c \frac{y_m^3}{3} = -\frac{v_0^2}{2} \Rightarrow c = \frac{3v_0^2 + 6gy_m}{2y_m^3}$$