

## Raindrop

a)  $v^2 = \cancel{u^2} + 2as$

$$v = \sqrt{2g \times 5000}$$

$$v = \underline{313 \text{ ms}^{-1}}$$

b)  $F_d = C_{\text{air}} A v^2$



$$C_{\text{air}} A v^2 = mg$$

$$C_{\text{air}} A v^2 = \underbrace{\text{Vol} \times \rho_{\text{water}}}_{\text{mass}} g$$

$$v_t = \sqrt{\frac{2mg}{C_{\text{air}} A}}$$

$$\sqrt{\frac{\cancel{\text{kg}} \text{ m s}^{-2}}{\cancel{\text{kg}} \text{ m}^{-3} \text{ m}^2}}$$

$$\sqrt{\text{m}^2 \text{s}^{-2}} = \underline{\text{m s}^{-1}}$$

$$= \underline{6.57 \text{ m/s}}$$

## Bacterium

Piazza @193.