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### ASSIGNMENT 1

$$1) F_D = \frac{0.3V^2}{500 + (\ln V)^3} - 0.02V \quad \dots (1)$$

$$F_D = mg = 3.5 \times 9.8 = 34.3 \quad \dots (2)$$

Equate Equ. (1) & (2)

$$mg = 34.3 = \frac{0.3V^2}{500 + (\ln V)^3} - 0.02V$$

Make  $V^2$  subject of formula

$$34.3 + 0.02V = \frac{0.3V^2}{500 + (\ln V)^3}$$

$$0.3V^2 = (34.4 + 0.02V) \times [500 + (\ln V)^3]$$

$$V^2 = \frac{(34.4 + 0.02V) \times [500 + (\ln V)^3]}{0.3}$$

$$V = \sqrt{\frac{(34.4 + 0.02V) \times [500 + (\ln V)^3]}{0.3}}$$

Initial guess value  $V_0 = 0.5 \text{ m/s}$

Absolute % relative error,  $E_a(i+1) \leq 1E-11$