

## Engineering mathematics Assignment 1

Soln

$$F_0 = \frac{0.3V^2}{500 + (\ln V)^3} - 0.02V \quad \text{--- (1)}$$

$$F_0 = mg = 3.5 \times 9.8 = 34.3 \quad \text{--- (2)}$$

Equation eqn (1) and (2)

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

making  $V^2$  the subject of the formula

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

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

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

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

from the equation

initial guess value  $\Rightarrow V_0 = 0.5 \text{ m/s}$ Absolute % relative error,  $E_a(i+1) \leq 1E-11$