This is the formula that we derived:

$$P = c_0 + c_1 \cdot dwt + c_2 \cdot speed^{\mu} + \epsilon$$

Let

$$x = \frac{1.63d}{s}(c_0 + c_1 \cdot dwt + c_2 \cdot s^{\mu})$$

$$fuel = x + t \cdot aux$$

$$cost = fuel + t \cdot penalty = x + d \cdot aux \cdot s^{-1} + d \cdot penalty \cdot s^{-1}$$

To optimise the cost, we need to set the derivative of cost equal to 0:

$$\frac{\mathrm{d}cost}{\mathrm{d}t} = 0$$

Hence,

$$s = (\frac{d(1.63c_0 + 1.63c_1 \cdot dwt + aux + penalty)}{1.63d \cdot c_2 \cdot (\mu - 1)})^{\frac{1}{\mu}}$$