

ENTREGA 2



$$\Delta Q = hA(T - T_{\infty}) + vPc_p \frac{dT}{dt}$$

$$\Delta Q + hA(T_{\infty} - T) - vPc_p \frac{dT}{dt} = 0$$

$$T = 0 \rightarrow T = T_0 \quad Q = Q_0, \quad \frac{dT}{dt} = \frac{dT_0}{dt}$$

$$Q_0 + hA(T_{\infty} - T_0) - 0 = 0$$

$$T = T$$

$$T = T_0 + \Delta T$$

$$Q = Q_0 + \Delta Q$$

$$\frac{dT}{dt} = \frac{dT_0}{dt} + \frac{d\Delta T}{dt}$$

$$Q_0 + \Delta Q + hA(T_{\infty} - T_0 + \Delta T) - vPc_p \frac{dT}{dt} = 0$$

$$Q_0 + hA(T_{\infty} - T_0) + \Delta Q + hA \cdot \Delta T - vPc_p \frac{d\Delta T}{dt} = 0$$

$$\Delta Q = hA \Delta T + vPc_p \frac{d\Delta T}{dt}$$

$$\frac{\Delta Q}{hA} = \Delta T + \frac{vPc_p}{hA} \frac{d\Delta T}{dt}$$

$$K = \frac{1}{hA} \quad Z = \frac{vPc_p}{hA}$$

$$K \Delta Q = \Delta T + Z \frac{d\Delta T}{dt} \rightarrow K \mathcal{L}[\Delta Q] = \mathcal{L}[\Delta T] + Z \mathcal{L}\left[\frac{d\Delta T}{dt}\right]$$

$$\frac{K}{s} \Delta Q = \Delta T + Z \cdot s \cdot \Delta T$$

$$\Delta T \cdot (1 + Zs) = \frac{K}{s} \Delta Q \rightarrow \Delta T = \frac{K \Delta Q}{s(1 + Zs)} = \frac{K \Delta Q}{Zs \left(\frac{1}{Z} + s\right)}$$

$$K \Delta Q \frac{-t}{(1 - p^s)}$$

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