

(22) Calculer  $\mathcal{L}[t^2 \cdot u(t-2)]$

$$\begin{aligned} F(s) &= \mathcal{L}[(t-2+2)^2 u(t-2)] = \mathcal{L}[(t-2)^2 + 4(t-2) + 4] u(t-2) \\ &= \mathcal{L}[t^2 + 4t + 4] e^{-2s} = e^{-2s} \left[ \frac{2}{s^3} + \frac{4}{s^2} + \frac{4}{s} \right] \end{aligned}$$