3.03ade

fredag 26 januari 2024 21:44

a)

$$f(t) = (2 + 3t^2)\,\theta(t) =$$

$$= 2\theta(t) + 3t^2\theta(t)$$

$g(t)$ ⇓ $\mathcal{L}g(s) = \frac{1}{s}$

$h(t)$ ⇓ $\mathcal{L}h(s) = \frac{2}{s^3}$

$$\mathcal{L}f(s) = \frac{2}{s} + \frac{6}{s^3} = \frac{2(s^2+3)}{s^3}$$

d)

$$f(t) = t^2 e^{3t}\theta(t)$$

$$\mathcal{L}f(s) = \frac{2}{(s-3)^3}$$

e)

$$f(t) = (\cos 2t - \sin 2t)\,\theta(t)$$

$$\mathcal{L}f(s) = \frac{s}{s^2+4} - \frac{2}{s^2+4} = \frac{s-2}{s^2+4}$$