

W4L3 - CALCULATING THE LAPLACE TRANSFORM OF A FUNCTION USING TABLES

Find the Laplace transform of

$$f(t) = 4\cos(2t) - 5t + 2e^{3t}$$

$$\mathcal{L}[4\cos(2t)] - \mathcal{L}[5t] + \mathcal{L}[2e^{3t}]$$

$$4\mathcal{L}[\cos(2t)] - 5\mathcal{L}[t] + 2\mathcal{L}[e^{3t}]$$

$$4\left(\frac{s}{s^2+2^2}\right) - 5\left(\frac{1}{s^2}\right) + 2\left(\frac{1}{s-3}\right)$$

$$\underline{= \frac{4s}{s^2+4} - \frac{5}{s^2} + \frac{2}{s-3}}$$