

Exercise 15

Find the inverse Laplace transform of the following:

$$F(s) = \frac{1}{s^2 + 1} + \frac{s}{s^2 - 4}$$

Solution

$$\begin{aligned}\mathcal{L}^{-1}\left\{\frac{1}{s^2 + 1} + \frac{s}{s^2 - 4}\right\} &= \mathcal{L}^{-1}\left\{\frac{1}{s^2 + 1}\right\} + \mathcal{L}^{-1}\left\{\frac{s}{s^2 - 4}\right\} \\ &= \sin x + \cosh 2x\end{aligned}$$