

Operational Properties I - Part I

1. Find $F(s)$.

(a) $\mathcal{L}\{te^{10t}\}$

(b) $\mathcal{L}\{t^3e^{-2t}\}$

(c) $\mathcal{L}\{t(e^t + e^{2t})^2\}$

2. Find $f(t)$.

(a) $\mathcal{L}^{-1}\left\{\frac{1}{(s+2)^3}\right\}$

(b) $\mathcal{L}^{-1}\left\{\frac{1}{s^2-6s+10}\right\}$

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

3. Find $f(t)$.

$$\mathcal{L}^{-1}\left\{\frac{s}{(s+1)^2}\right\}$$

4. Find $f(t)$.

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