

# ESCUELA MILITAR DE INGENIERIA

## ECUACIONES DIFERENCIALES

### Misceláneas de problemas

2013

**Tema: TRANSFORMADA DE LA PLACE.**

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En los problemas siguientes hallar  $F(s)$  o  $f(t)$ , como se indica.

1.  $\mathcal{L}\{te^{10t}\}$
2.  $\mathcal{L}\{t^3e^{-2t}\}$
3.  $\mathcal{L}\{t(e^t + e^{2t})^2\}$
4.  $\mathcal{L}\{e^{2t}(t - 1)^2\}$
5.  $\mathcal{L}\{e^t \text{sen } 3t\}$
6.  $\mathcal{L}\{e^{-2t} \cos 4t\}$
7.  $\mathcal{L}\{(1 - e^t + 3e^{-4t} \cos 5t)\}$
8.  $\mathcal{L}\{e^{3t}(9 - 4t + 10 \text{sen}(t/2))\}$
9.  $\mathcal{L}\{e^{3t} \cos 3t \cos 4t\}$
10.  $\mathcal{L}\{\frac{\text{sen } t}{t}\}$
11.  $\mathcal{L}\{\text{sen } 5t \text{sen } 2t\}$
12.  $\mathcal{L}\{\cos^2 4t\}$
13.  $\mathcal{L}\{t \text{senh } 3t\}$
14.  $\mathcal{L}\{te^{2t} \text{sen } 6t\}$
15.  $\mathcal{L}\{t^2 \text{senh } t\}$

16.  $\mathcal{L}\{te^{-3t} \cos 3t\}$

17.  $\mathcal{L}\{1 * t^3\}$

18.  $\mathcal{L}\{t^2 * te^t\}$

19.  $\mathcal{L}\{e^{2t} * \text{sen } t\}$

20.  $\mathcal{L}\{\int_0^t e^\tau d\tau\}$

21.  $\mathcal{L}\{\int_0^t \cos \tau d\tau\}$

22.  $\mathcal{L}\{\int_0^t e^{-\tau} \cos \tau d\tau\}$

23.  $\mathcal{L}\{\int_0^t \tau e^{t-\tau} d\tau\}$

24.  $\mathcal{L}\{t \int_0^t \text{sen } \tau d\tau\}$

25.  $\mathcal{L}\{t \int_0^t \tau e^{-\tau} d\tau\}$

26.  $\mathcal{L}^{-1}\left\{\frac{1}{s(s-1)}\right\}$

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

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

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

30.  $\mathcal{L}^{-1}\left\{\frac{1}{s^2-6s+10}\right\}$

31.  $\mathcal{L}^{-1}\left\{\frac{1}{(s-1)^4}\right\}$

32.  $\mathcal{L}^{-1}\left\{\frac{s}{s^2+4s+5}\right\}$

33.  $\mathcal{L}^{-1}\left\{\frac{2s+5}{s^2+6s+34}\right\}$

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

$$35. \mathcal{L}^{-1}\left\{\frac{5s}{(s-2)^2}\right\}$$

$$36. \mathcal{L}^{-1}\left\{\frac{2s-1}{s^2(s+1)^3}\right\}$$

$$37. \mathcal{L}^{-1}\left\{\frac{(s+1)^2}{(s+2)^4}\right\}$$

$$38. \mathcal{L}^{-1}\left\{\frac{s^3+9s^2+27s+25}{(s+1)^3(s+2)^2}\right\}$$

$$39. \mathcal{L}^{-1}\left\{\frac{e^{-s}}{s(s+1)}\right\}$$

$$40. \mathcal{L}^{-1}\left\{\frac{e^{-2s}}{s^2(s-1)}\right\}$$