

Actividad 6

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Ecuaciones Diferenciales

Grupo: 25

$$3) \mathcal{L}\{c_1 f_1(t) + c_2 f_2(t)\} = c_1 \mathcal{L}\{f_1(t)\} + c_2 \mathcal{L}\{f_2(t)\}$$

• Obtener la transformada de Laplace

$$1) F(t) = t^6 \quad \mathcal{L}\{t^6\} = \frac{6!}{s^7}$$

$$2) F(t) = e^{-5t} \quad \mathcal{L}\{e^{-5t}\} = \frac{1}{s+5}$$

$$3) F(t) = te^t \quad \mathcal{L}\{te^t\} = \frac{1}{(s-1)^2}$$

$$4) F(t) = t^2 e^{-3t} \quad \mathcal{L}\{t^2 e^{-3t}\} = \frac{2!}{(s+3)^3}$$

$$5) F(t) = \sin(t) \quad \mathcal{L}\{\sin(t)\} = \frac{1}{s^2+1}$$

$$6) F(t) = \sin(5t) \quad \mathcal{L}\{\sin(5t)\} = \frac{5}{s^2+25}$$

$$7) F(t) = \cos(10t) \quad \mathcal{L}\{\cos(10t)\} = \frac{s}{s^2+100}$$

$$8) F(t) = \sinh(t) \quad \mathcal{L}\{\sinh(t)\} = \frac{1}{s^2-1}$$

$$9) F(t) = \cosh(3t) \quad \mathcal{L}\{\cosh(3t)\} = \frac{s}{s^2-9}$$

$$10) e^t \sin(2t) \quad \mathcal{L}\{e^t \sin(2t)\} = \frac{2}{(s-1)^2+4}$$

$$11) e^t \cosh(t) \quad \mathcal{L}\{e^t \cosh(t)\} = \frac{(s+1)}{(s+1)^2-4}$$

$$12) t \sin(2t) \quad \mathcal{L}\{t \sin(2t)\} = \frac{4s}{(s^2+4)^2}$$

$$13) t \cos(t) \quad \mathcal{L}\{t \cos(t)\} = (s^2-1)(s^2+1)^{-2}$$