

Problem B-2-14

Find the inverse Laplace transforms of the following functions:

$$(a) \quad F_1(s) = \frac{6s + 3}{s^2}$$

$$(b) \quad F_2(s) = \frac{5s + 2}{(s + 1)(s + 2)^2}$$

Problem B-2-17

Obtain the inverse Laplace transform of

$$F(s) = \frac{s}{s^2 + 2s + 10}$$

Problem B-2-22

Find the solution $x(t)$ of the differential equation

$$\ddot{x} + 4x = 0, \quad x(0) = 5, \quad \dot{x}(0) = 0$$

Problem B-2-23

Obtain the solution $x(t)$ of the differential equation

$$\ddot{x} + \omega_n^2 x = t, \quad x(0) = 0, \quad \dot{x}(0) = 0$$

Problem B-2-24

Determine the solution $x(t)$ of the differential equation

$$2\ddot{x} + 2\dot{x} + x = 1, \quad x(0) = 0, \quad \dot{x}(0) = 2$$

Problem B-2-25

Obtain the solution $x(t)$ of the differential equation

$$\ddot{x} + x = \sin 3t, \quad x(0) = 0, \quad \dot{x}(0) = 0$$
