

## LS4. Version A.

$$y'' + 9y = 9U(t - 4) \quad y(0) = y'(0) = 0$$

$$s^2 Y(s) - sy(0) - y'(0) + 9Y(s) = \frac{9}{s} e^{-4s}$$

$$Y(s) = \frac{9}{s(s^2 + 9)} e^{-4s}$$

$$Y(s) = \left( \frac{1}{s} - \frac{s}{s^2 + 9} \right) e^{-4s}$$

$$G(s) = \frac{1}{s} - \frac{s}{s^2 + 9} \quad g(t) = 1 - \cos 3t$$

$$y(t) = U(t - 4) \{ 1 - \cos 3(t - 4) \}$$