

MATH4564 - Homework No4 - Fall 03 - Konaté

Notice: Show your work. A right answer with a bad reasoning will be considered as wrong. Use a computer and any dialect to perform your graphing.

Reminder:

$$3! = 1 * 2 * 3 = 6$$

A• Find the Inverse Laplace Transform of the function:

$$F_1(s) = \frac{s+3}{s^2-s-2} \quad F_2(s) = \frac{4}{(s-1)^2}$$

$$F_3(s) = \frac{s+5}{(s+2)^2} \quad F_4(s) = \frac{3}{s(s^2+4)}$$

$$F_5(s) = \frac{3!}{(s-2)^4} \quad F_6(s) = \frac{e^{-2s}}{s^2+s-2}$$

$$F_7(s) = \frac{e^{-s} + e^{-2s} - e^{-3s} - e^{-4s}}{s}$$

B• Use the Laplace Transform method to solve and graph the solution $y(t)$ over the interval $[0,10]$ against the variable t

$$\begin{cases} y'' + 3y' + 2y = U_5(t) \\ y(0) = 0 \\ y'(0) = \frac{1}{2} \end{cases}$$

C• Use the Laplace Transform method to solve and graph the solution $y(t)$ over the interval $[0,10]$ against the variable t

$$\begin{cases} y' + \frac{1}{5}y = \cos(t) \\ y(0) = 10 \end{cases}$$
