

Taking inverse transform

$$x(t) = \frac{1}{3}u(t) + \frac{5}{3}e^{-t}\cos \sqrt{0.5}t + \frac{8}{3\sqrt{0.5}}e^{-t}\sin \sqrt{0.5}t$$

$$x(t) = \left(0.33 + 1.667e^{-t}\cos 0.71t + 3.77e^{-t}\sin 0.71t\right)u(t) \\ \forall t > 0$$