Math 307 Quiz 8

June 6, 2014

Problem 1. Find the inverse Laplace transform of

$$F(s) = \frac{s+3}{s^2 + s + 6}$$

Problem 2. Consider the function

$$f(t) = \begin{cases} 0, & t < \pi \\ 1, & \pi \le t < 5 \\ 0, & 5 \le t \end{cases}$$

(a) Express $f(t)$ in step function form

(b) Find the Laplace transform of $f(t)$

Problem 3. Use Laplace transforms to find the solution to the differential equation

$$y'' - 9y = e^t \sin(2t), \ y(0) = 1, \ y'(0) = 2.$$