

Math 307 Quiz 5

May 7, 2014

Problem 1. Find the general solution to the differential equation

$$y'' - 5y' + 6y = 3e^t$$

Problem 2. Consider the differential equation

$$(*) \quad y'' - 5y' + 6y = 7e^{2t} \sin(t).$$

Suppose also \tilde{y}_p is a particular solution to the differential equation

$$\tilde{y}'' - 5\tilde{y}' + 6\tilde{y} = e^{at}$$

for what value of a is $y_p = \text{Im}(\tilde{y}_p)$ a particular solution to $(*)$?

Problem 3. Find the general solution to the differential equation

$$y'' - 5y' + 6y = 7e^{2t} \sin(t).$$

Problem 4. Find the general solution to the differential equation

$$y'' - 5y' + 6y = e^{2t} \sin(t) + 4e^t.$$