MATH 2120 – Quiz 3 Tuesday October 16, 2014

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1. Find the general solution of the ODE

$$y''' + y = 0\,.$$

   Leave the solution in terms of complex exponentials; **do not** write it in terms of sines and cosines.

2. Find the general solution of the ODE

$$y'' - 2y' + 5y = 0\,.$$

   Write the solution in terms of sines and cosines.

3. Write the following in phase-amplitude form:

   (a) $x(t) = e^{-5t}\left[\sqrt{3}\cos 3t - \sin 3t\right]$

   (b) $x(t) = -\cos t + \sin t$