Math 225 – Quiz #10: Laplace Transform

Clearly and neatly show all work for each problem. Solutions with no work will receive no credit.

1. Use the **definition of the Laplace** transform to find $\mathcal{L}\{\sin 2t\}$.

2. Use the Laplace transform to solve the following initial-value problems.

$$(a) \quad y' + 6y = e^{4t}, \qquad y(0) = 2$$

$$(b) \quad y'' - 4y' = 6e^{3t} - 3e^{-t}, \qquad y(0) = 1, \qquad y'(0) = -1$$

$$(c) \quad y''' + 2y'' - y' - 2y = \sin 3t\,, \qquad y(0) = 0, \qquad y'(0) = 0, \qquad y''(0) = 1$$