

Math 225 – Quiz #7: Variation of Parameters

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

Find the general solution for the following differential equations.

$$(1) \quad y'' + y = \cos^2 x$$

$$(2) \quad y'' + 2y' + y = e^{-x} \ln x$$

$$(3) \quad x^2 y'' + xy' + \left(x^2 - \frac{1}{4}\right)y = x^{3/2}, \quad y_1 = x^{-1/2} \cos x, \quad y_2 = x^{-1/2} \sin x$$