

MAT 239 (Differential Equations), Prof. Swift
Worksheet 24, Test Review

1. Write down the general solution to $(D - 2)^3(D - 4)y = 0$. The independent variable is x .

2. Write down the form of a particular solution to $(D - 2)^3(D - 4)y = 5e^{2x} + 7\sin(4x)$

3. Suppose that
 $y_1(t)$ solves the IVP $y'' + e^t y' + \sin(t)y = 0$, $y(0) = 1$, $y'(0) = 0$,
 $y_2(t)$ solves the IVP $y'' + e^t y' + \sin(t)y = 0$, $y(0) = 0$, $y'(0) = 1$, and
 $y_3(t)$ solves the IVP $y'' + e^t y' + \sin(t)y = t^2$, $y(0) = 0$, $y'(0) = 0$.

Write down the solution to the IVP $y'' + e^t y' + \sin(t)y = t^2$, $y(0) = \alpha$, $y'(0) = \beta$ as a linear combination of y_1 , y_2 , and y_3 .