

Name (Last, First)

1. (4pts) Solve the following differential equations.

1)

$$y''(t) - 4y(t) = 0, \quad y(0) = 4, \quad y'(0) = -4$$

2)

$$z''(t) + z(t) = 0, \quad z(0) = 2, \quad z\left(\frac{\pi}{2}\right) = 0$$

2. (6pts)

a. Let $y_0(t) = \frac{t}{4} - \frac{1}{8}$. Compute $y_0''(t) + 2y_0'(t) + 4y_0(t)$.

b. Find general solutions of $y''(t) + 2y'(t) + 4y(t) = 6t - 12 \cos 2t$