

Instructions: Show all work. Answers without work required to obtain the solution will not receive full credit. Some questions may contain multiple parts: be sure to answer all of them. Give exact answers unless specifically asked to estimate.

1. Solve the differential equations below.

a. $y'' + 4y' + 12y = 0, y(0) = 3, y'(0) = 0$

b. $y'' - 16y = 0$. Write the solution to this problem as hyperbolic trig functions.

c. $t^2y'' - 6ty' + 12y = 0, y(1) = 2, y(2) = 6$