

Worksheet #12

Date : 23/04/2024

Name: _____

MTH204: ODEs/PDEs

Semester: Winter 2024

Section: _____

Problem 1. Solve $u_y + y^2 u = 0$.

Problem 2. Verify that the function $u(x, y) = a \ln(x^2 + y^2) + b$ satisfies Laplace's equation and determine a and b so that u satisfies the boundary conditions $u = 110$ on the circle $x^2 + y^2 = 1$ and $u = 0$ on the circle $x^2 + y^2 = 100$.

Problem 3. Verify that the function $u = x^2 + t^2$ is the solution of the wave equation $u_{tt} = c^2 u_{xx}$ for a suitable c . =