Contents

1 Introduction

1.1 Nonhomogeneous Linear Differential Equations

This text isd concerned with the solutions to non-homogeneous linear differential equations, which have the form

$$\mathbf{L}u = \phi, \tag{1.1}$$

over an interval a $\leq$ x $\leq$ b and subject to certain boundary conditions, where $\mathbf{L}$ is an nth order linear ordinary differential operator and where the function ϕ is integrable on the given interval.[1] We begin by proving a theorem about such operators.

2 test

[1]For $\mathbf{L}$ to be linear, it must satisfy the condition

$$\mathbf{L}(\alpha v + \beta w) = \alpha v + \beta \mathbf{L}w \tag{1.1}$$

arbitrary functions v and w, with α and β being constant.