Undetermined-Coefficients

Logan Grosz

February 17, 2018

Abstract

Abstract goes here...

1 Declarations

variable; variable description; *variable domain and range, if applicable*

2 Rule

Non-Homogeneous Linear Differential Equation:

$$a\,y^{(n)} + b\,y^{(n-1)} + c\,y^{(n-2)} + \cdots + c_{n-1}y' + c_n y = f(x)$$

Solve the subscribed homogeneous linear equation to find y_c:

$$a\,y^{(n)} + b\,y^{(n-1)} + c\,y^{(n-2)} + \cdots + c_{n-1}y' + c_n y = 0$$

Find any particular solution, y_p that relates to the right side of the equation. Such as the following...

$f(x)$	p_y
e^x	$A\,e^x$
$sin(x)$	$A\,sin(x) + B\,cos(x)$
x^n	$A\,x^n + B\,x^{n-1} + \ldots$

Note: Terms in the particular solution must not exist in the complementary solution.

Solution is the combination of y_c and y_p.

$$y(x) = y_c + y_p$$

3 Pre-Derivation

Anything that the derivation relies on goes here

4 Derivation

Derivation goes here

5 Exempli Gratia

Examples of important instances