4.3.1-Inhomogeneous 2nd Order Linear Differentials

#UCLA #Y1Q3 #Math33B

4.3.1: Inhomogeneous 4.1-2nd Order Linear Differentials with Constant Coefficients

---

Key Definitions

Inhomogeneous Equations - Eq. w/ forcing term $g(t) \neq 0$
I.e. dealing with 4.2-Homogenous 2nd Order Linear when $\neq 0$ of form:

$$Y'' + PY' + QY = G(T)$$

General Solution for Constant Coefficients

If y_p is a particular solution to the inhomogeneous eq. $y'' + py' + qy = g(t)$ and y_1, y_2 form a fundamental set of solutions to the homogeneous eq. $y'' + py' + qy = 0$, then the general solution is:

$$Y(T; C_1, C_2) = C_1 Y_1(T) + C_2 Y_2(T) + Y_P(T)$$

Use 4.3.2-Method of Undetermined Coefficients to find a particular solution if p, q are constant
Use 4.4-Variation of Parameter otherwise