

## 7 定数係数線形微分方程式 その2

### Linear differential equation with constant coefficients

非同次形 Non-homogenous case

#### 7.1 p.62

Consider the following differential equation,

$$y'' + 2y' = 10. \quad (*)$$

- (a) Find the general solution of (\*).
- (b) Eliminate arbitrary constants in the solution obtained in (a), and verify whether (\*) can be derived.
- (c) Verify whether the solution derived in (a) satisfies the equation (\*).

#### 7.2 pp. 70-72

Find a particular solution for each of the following differential equations;

- (1)  $y'' - y' + 3y = 10$ ,
- (2)  $y'' - 2y' + 2y = e^{3x}$ ,
- (3)  $y'' + y' - 12y = e^{3x}$ .

#### 7.3 p. 74

Find a general solution for each of the following differential equations;

- (1)  $y'' + y' + y = \sin 3x$ ,
- (2)  $y'' - y' = x^2 + x$ .