11/10/xx Class - XII (MATHS) K. Kanhaya

Differential eqⁿ :-

An eqⁿ involving derivative (derivatives) of the dependant variable with respect to independant variable (variables) is called a differential eqⁿ.

A differential eqⁿ involving derivatives of the dependant variable w.r.t only one independant variable is called an ordinary differential eqⁿ.

$2\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^3 = 0$ is an

Ordinary differential eqⁿ;

⇒ Order of a differential eqⁿ.

The highest derivative of a differential eqⁿ is called Order of differential eqⁿ

Degree of a differential eq^n :-

The highest powers on the derivatives of the highest order derivatives of a differential eq^n is called degree of differential eq^n.

Note :- Order and degree of a differential equations are always +ve integers.

⇒ Find the order and degree, if defined of each of the following differential eq^n :-

(a) $\frac{dy}{dx} - \cos x = 0$

(b) $xy\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right)^2 - y\frac{dy}{dx} = 0$

(c) $y''' + y^2 + e^{y'} = 0.$