

PARTIAL DIFFERENTIAL EQUATIONS

1. A differential eqⁿ containing one or more partial derivatives is called a PDE.

2. Partial differentiation occurs only when we are at least two independent variables.

$$z = f(x, y)$$

Eg $z = x^2y$ $\frac{\partial z}{\partial x} = 2xy$ $\frac{\partial z}{\partial y} = x^2$

3. The order of a PDE is the order of the highest order partial derivative present in the equation.

order 1. $x \frac{\partial z}{\partial x} + y \frac{\partial z}{\partial y} = 0$

$$\left(\frac{\partial z}{\partial x}\right)^2 + \left(\frac{\partial z}{\partial y}\right)^2 = 0$$

order 2:- $\frac{\partial^2 z}{\partial t^2} = k^2 \left(\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2}\right)$

4. The degree of a PDE is the power of the highest order partial derivative present in the eqⁿ.

JUNE 2010				JULY						
1	7	14	21	28	Mon	5	12	19	26	
2	8	15	22	29	Tue	6	13	20	27	
3	9	16	23	30	Wed	7	14	21	28	
4	10	17	24		Thu	1	8	15	22	29
5	11	18	25		Fri	2	9	16	23	30
6	12	19	26		Sat	3	10	17	24	31
7	13	20	27		Sun	4	11	18	25	

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Week 23

Tuesday

Day 152-213

JUNE 2017

5.7 Partial derivatives $\frac{\partial z}{\partial x}$, $\frac{\partial z}{\partial y}$, $\frac{\partial^2 z}{\partial x^2}$,

$\frac{\partial^2 z}{\partial x \partial y}$, $\frac{\partial^2 z}{\partial y^2}$ are denoted by $p, q, r,$

s, t respectively.

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