[Glossary]

Introduction to Partial Differentiation

Subject:	Business Economics
Course:	B. A. (Hons.), 6th Semester, Undergraduate
Paper No. & Title:	Paper – 631 Advanced Mathematical Techniques
Unit No. & Title:	Unit – 2 Function of Two Variables
Lecture No. & Title:	Lecture – 1 Introduction to Partial Differentiation

Glossary

- A ***function of several variables*** consists of two parts: a domain, which is a collection of points in the plane or in the space, and a rule, which assigns to each member of the domain one and only one point.
- A function of several variables is called a ***function of two variables*** if its domain is a set of points in the plane.
- A function of several variables is called a ***function of three variables*** if its domain is a set of points in the space.
- Let u = f(x,y). The derivative of u with respect to x if it exists when x alone varies and y remains constant is called ***partial derivative*** of u with respect to x. and it is denoted by u_x.
- **Young's Theorem**: For a function u = f(x_1, x_2, …, x_n) with continuous first and second – order partial derivatives, the order of differentiation in computing the cross-partials is irrelevant. i.e. $f_{ij} = f_{ji}$ for i, j = 1, 2,…n and $i \neq j$.

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