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Research Paper

Approximation of Surface Functions

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I. INTRODUCTION

Background:

A function F(x,y) maps a pair of values(x,y) to a single real number.the three dimensional coordinate systems, it has been already used in a convenient way, to visualize such functions above each point(x,y) in the x,y plane , graphing the point(x,y,z) where of course z=F(x,y).

Abstract:a function of two independent variables can be approximated by a series to be solved for integration.

Methodology: representation of surface function by a series,to be integrated easier, it is qualitative and quantitative systematic method, by differentiation.

Literature of review: approximation of surface functions of two independent variables x,y,and follower z variable by a series.

Problem of study: to approximate difficult functions , by a purified function which is easy to solve.

Motivation: to be able to solve such difficult functions easier.usingx,y,and follower z as a solution.

Conclusions:easy used surface function.

Results: surface function.

Appendix

F(x,y)=f(o,o)+∑∑(df(0,0)/dx^ndy^i)(x^ny^i/n!*i!)

∑(df(0,0)/dx^l)*x^l/l!)+(∑df(0,0)/dy^m)*y^m/m!)+

Where n and i from 0 to infinity and l and m from 0 to infinity

Proof

dF(0,0)/dxdy=df(0,0)/dxdy

dF(0,0)/dy^2=df(0,0)/dy^2

dF(0,0)/dxdy^2=df(0,0)/dxdy^2

dF(0,0)/dx^2dy=df(0,0)/dx^2dy

dF(0,0)/dx^2dy^2=df(0,0)/dx^2dy^2

taking in to account that the approximated function is f(x,y) and the original function is F(x,y) .

as an example suppose F(x,y)=e^xsiny

dF(x,y)/dx(x,y)=e^xsiny

dF(x,y)/dx^2(x,y)=e^xsiny

dF(x,y)/dy=e^xcosy

and so on

suppose x=π/4

y=π/6

approximated value=1,094792746

exact value=1.0966400026

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