No.

Date 27 maret 2025

∂ = del

1) $x^3\,dx + y^3\,dy = 0$

↳ $x^3dx + y^3dy = 0$

M N

$\frac{\partial M}{\partial y} = 3x^3 \quad \frac{\partial N}{\partial x} = 3x^3 \Rightarrow$ exact

$\Rightarrow u = \int M\,dx + f(y)$

$= \int x^3\,dx + f(y)$

$u = \frac{1}{4}x^4 + f(y)$

$\Rightarrow \frac{\partial u}{\partial y} = N \rightarrow y^3 = f'(y)$

$f(y) = \frac{1}{4}y^4 + c$

$u = \frac{1}{4}x^4 + \frac{1}{4}y^4 + c$

2) $(x-y)(dx-dy) = 0$

↳ $(x-y)(dx-dy) = 0 \rightarrow (x-y)dx - (x-y)dy$

M N M N

$\frac{\partial M}{\partial y} = -1 \quad \frac{\partial N}{\partial x} = -1 \Rightarrow$ exact

$\Rightarrow u = \int M\,dx + f(y)$

$= \int (x-y)\,dx + f(y)$

$u = \frac{1}{2}x^2 - xy + f(y)$

$\Rightarrow \frac{\partial u}{\partial y} = N \rightarrow -x + y = -x + f'(y)$

$f(y) = y$

$= \frac{1}{2}y^2 + c$

$u = \frac{1}{2}x^2 - xy + \frac{1}{2}y^2 + c$