

No.

Date

Fungsi $M(x,y)$ sedemikian sehingga PD berikut merupakan PD Eksak.

$$M(x,y) dx + (2x^2y^3 + x^4y) dy = 0$$

Jawab:

Misal $2x^2y^3 + x^4y = M(x,y)$

maka,

$$M(x,y) dx + M(x,y) dy = 0$$

Syarat PD Eksak adalah $\frac{\partial M}{\partial y}(x,y) = \frac{\partial M}{\partial x}(x,y)$

$$\frac{\partial M}{\partial y}(x,y) = 4xy^3 + 4x^3y$$

$$\int \frac{\partial M}{\partial y}(x,y) dy = \int (4xy^3 + 4x^3y) dy$$

$$M(x,y) = xy^4 + 2x^3y^2 + C(y)$$

Diambil $C = 0$

Sehingga fungsi $M(x,y) = xy^4 + 2x^3y^2$