

Vionalisa Oktavia. K

M. Hasyim . A

Hernan. L.M. Huwae , Muh. Zaughy Nur Tajrid

[1] Periksa apakah $y = e^{2x}$ adalah solusi dari PD $2y - \frac{dy}{dx} = 0$

$$\begin{aligned} \hookrightarrow \frac{dy}{dx} &= 2e^{2x} \rightarrow 2y - \frac{dy}{dx} \\ &\rightarrow 2(e^{2x}) - 2e^{2x} \\ &= 0 \end{aligned}$$

Jadi $y = e^{2x}$ adalah solusi dari PD $2y - \frac{dy}{dx} = 0$

[4] $F(x,y) = x^2 + 3y^3 + 6xy^2$. Tent $F_x, F_y, F_{xx}, F_{yy}, F_{xy}, F_{yx}$

$$\hookrightarrow F(x,y) = x^2 + 3y^3 + 6xy^2$$

$$F_x = 2x + 6y^2$$

$$F_y = 9y^2 + 12x$$

$$F_{xx} = 2$$

$$F_{yy} = 18y + 12x$$

$$F_{xy} = 12y$$

$$F_{yx} = 12y$$

$$3.) y = x^2 + 2$$

$$\frac{dy}{dx} = 2x$$

$$x^2 - 2 \frac{dy}{dx} = 0$$

$$x^2 - 2(2x) = 0$$

$$x^2 - 4x = 0$$

$\therefore y = x^2 + 2$ bukan penyelesaian dari PD

$$x^2 - 2 \frac{dy}{dx} = 0$$

6.) $F(x, y) = 2 \cos xy$

$$F_x = -2y \sin xy$$

$$F_y = -2x \sin xy$$

$$F_{xx} = -2y^2 \cos xy$$

$$F_{yy} = -2x^2 \cos xy$$

$$F_{xy} = -2 \cos xy - 2xy \cos xy$$

$$F_{yx} = -2 \cos xy - 2xy \cos xy$$

• Periksa apakah $y = \cos 2u$ adalah solusi dari PD: $\frac{d^2 y}{du^2} + 4y = 0$

$$\begin{aligned} \text{Dik} \quad y &= \cos 2u \\ y' &= -2 \sin 2u \\ y'' &= -4 \cos 2u \end{aligned}$$

Substitusikan \therefore

$$\Rightarrow \frac{d^2 y}{du^2} + 4y = 0$$

$$= -4 \cos 2u + 4 (\cos 2u) = 0$$

$$0 = 0 \quad \langle \text{Homogen} \rangle$$