

Tugas 5

Penyelesaian :

①

$$y = 5 - 4t^6$$

$$x = \arcsin(t^2 - 1)$$

$$\Rightarrow \therefore x = \arcsin(t^2 - 1)$$

$$t^2 - 1 = \sin x$$

$$t^2 = \sin x + 1$$

$$t = (\sin x + 1)^{1/2}$$

$$t' = \frac{1}{2} (\sin x + 1)^{-1/2} (\cos x)$$

$$\therefore (\sin x + 1)^{(1/2)(6-1) + (1/2-1)}$$

$$(\sin x + 1)^{5/2 - 1/2 + 1/2 - 1}$$

$$(\sin x + 1)^{6/2 - 1}$$

$$\therefore y' = -4 \cdot 6 (\sin x + 1)^{1/2(6-1)} \cdot \frac{1}{2} (\sin x + 1)^{1/2-1} \cdot \cos x //$$

②

$$x = \ln(5 - 4t)$$

$$y = \cos(t^2)$$

$$\Rightarrow \therefore e^x = e^{\ln(5-4t)}$$

$$e^x = 5 - 4t$$

$$4t = 5 - e^x$$

$$t = \frac{5}{4} - \frac{1}{4} e^x$$

$$t' = -\frac{1}{4} e^x$$

$$\therefore y = \cos(t^2)$$

$$y' = -\sin t^2 \cdot 2t \cdot t'$$

$$= -\sin\left(\frac{5}{4} - \frac{1}{4} e^x\right)^2 \left[2\left(\frac{5}{4} - \frac{1}{4} e^x\right)\right]$$

$$\left[-\frac{1}{4} e^x\right] //$$