

$$\textcircled{1} X=a \Leftrightarrow g(t)=a \Leftrightarrow g'(g(t))=5, g(g(t))=2 \Leftrightarrow h'(g(t))=-4, h(g(t))=7$$

$$\frac{dz}{dt} = \frac{\partial z}{\partial x} \frac{\partial x}{\partial t} + \frac{\partial z}{\partial y} \frac{\partial y}{\partial t}$$

$$= f_x(2,7)g'(a) + f_y(2,7)h'(a)$$

$$= 6.5 + (-8).(-4) = 62 //$$

$$\textcircled{2} f(x,y,\lambda) = 6x + \frac{96}{x} + \frac{4y}{x} + \frac{x}{y} - \lambda(x+y-6)$$

$$= 6x + \frac{96}{x} + \frac{4y}{x} + \frac{x}{y} - \lambda x - \lambda y + 6\lambda = 0$$

$$f_x = 6 - \frac{96}{x^2} - \frac{4y}{x^2} + \frac{1}{y} - \lambda = 0$$

$$f_y = \frac{4}{x} - \frac{x}{y^2} - \lambda = 0$$

$$f_\lambda = -x - y + 6 = 0$$

$$\textcircled{3} \iint_R e^{x^2+y^2} dx dy \quad \text{diketahui: } x \text{ positif, } y \text{ positif} \quad y = \sqrt{1-x^2} \Rightarrow y^2 = 1-x^2$$

$$[1,0], [0,1]$$

$$\int_{y=0}^{y=1} \int_{x=0}^{x=y} e^{x^2+y^2} dx dy$$

$$= \int_{y=0}^{y=1} e^{y^2} \frac{\sqrt{\pi} \operatorname{erfi}(1) - \sqrt{\pi} \operatorname{erfi}(0)}{2}$$

$$= \frac{(\sqrt{\pi} \operatorname{erfi}(1) - \sqrt{\pi} \operatorname{erfi}(0))^2}{4} //$$