$$\underbrace{(2y\cos 2x - y\sin x)}_{M}\,dx + \underbrace{(\sin 2x + \cos x)}_{N}\,dy = 0$$

$$M = 2y\cos 2x - y\sin x \qquad N = \sin 2x + \cos x$$

$$M_y = 2\cos 2x - \sin x \quad = \quad N_x = 2\cos 2x - \sin x$$

$$M_y = N_x \longrightarrow PD. \text{ eksak}$$

$$F_x(x,y) = M$$

$$F(x,y) = \int M\,dx$$

$$F(x,y) = \int 2y\cos 2x - y\sin x\,dx$$

$$F(x,y) = 2y\cdot\frac{1}{2}\sin 2x - y\cdot -\cos x + c(y)$$

$$F(x,y) = y\sin 2x + y\cos x + \boxed{c(y)}$$

$$F_y(x,y) = N$$

$$\frac{\partial}{\partial y}\, y\sin 2x + y\cos x + c(y) = \sin 2x + \cos x$$

$$\cancel{\sin 2x} + \cancel{\cos x} + c'(y) = \cancel{\sin 2x} + \cancel{\cos x}$$

$$c'(y) = 0$$

$$c(y) = \int 0\,dy$$

$$c(y) = C \qquad\qquad \boxed{F(x,y) = C}$$

$$F(x,y) = y\sin 2x + y\cos x + \boxed{c(y)} = \boxed{C}$$

$$y\sin 2x + y\cos x + c = C$$

$$y\sin 2x + y\cos x = C$$