

$$\begin{aligned} \sin(8x) \frac{dy}{dx} + (8 \cos(8x)) y &= \sin(x^4) \Rightarrow [(\sin(8x)) y]' = \sin(x^4) \Rightarrow \\ (\sin(8x)) y &= \int \sin(x^4) dx \Rightarrow y = \frac{\int \sin(x^4) dx + C}{\sin(8x)}. \end{aligned}$$