14. Find the particular solution of the differential equation

\[ \frac{d^2 y}{dx^2} - 6 \frac{dy}{dx} + 9y = 8 \sin x + 19 \cos x \]

given that \( y = 7 \) and \( \frac{dy}{dx} = \frac{1}{2} \) when \( x = 0 \).

Answer

\[ y = 5e^{3x} - 14xe^{3x} - \frac{1}{2} \sin x + 2 \cos x \]