Find the particular solution of the differential equation

$$\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 4y = 6e^{2x}$$

given $y = 4$ and $\frac{dy}{dx} = 7$ when $x = 0$.

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Answer:

$$y = 4e^{2x} - xe^{2x} + 3x^2e^{2x}$$