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$$y = he^x + \frac{k}{e^{2x}} \quad - \textcircled{1} \quad \rightarrow \quad \frac{d}{dx} \left(\frac{k}{e^{2x}} \right) = \frac{d}{dx} (ke^{-2x})$$

$$\frac{dy}{dx} = he^x - \frac{2k}{e^{2x}} \quad - \textcircled{2} \quad \rightarrow \quad = -2ke^{-2x}$$

$$\frac{d^2y}{dx^2} = he^x + \frac{4k}{e^{2x}} \quad - \textcircled{3}$$

$$\frac{d^2y}{dx^2} - 2\frac{dy}{dx} = \textcircled{3} - 2\textcircled{2}$$

$$= he^x + \frac{4k}{e^{2x}} - 2 \left[he^x - \frac{2k}{e^{2x}} \right]$$

$$= -he^x + \frac{8k}{e^{2x}} \quad // \quad \text{Ans}$$