Question 1. Evaluate $\mathcal{L}\left\{ t \int_0^t \tau e^{-\tau} \, d\tau \right\}$.

Question 2. Solve the differential equation using Laplace transform

$$y'' - 5y' + 4y = e^{2t}, \quad y(0) = 1, \quad y'(0) = -1.$$