HOMEWORK #13 prob 1b solution

EX: Find $\mathcal{L}\left\{\int_0^t e^{-6\tau}\cos(7\tau)d\tau\right\}$.

SOL'N: a) We use the identity for integration and the transform pair for the decaying cosine:

$$\mathcal{L}\left\{\int_0^t e^{-6\tau}\cos(7\tau)d\tau\right\} = \frac{1}{s}\mathcal{L}\left\{e^{-6t}\cos(7t)\right\} = \frac{s+6}{s[(s+6)^2+7^2]}$$