Panel 15

Homework:

(1) Find the following integrals:

a) $\int_0^1 (3t - i)^2 \, dt$ b) $\int_0^{\pi/4} t e^{it} \, dt$

(2) Show that $\int_0^{2\pi} e^{imt} e^{-int} \, dt = \begin{cases} 0 & \text{if } n \neq m \\ 2\pi & \text{if } n = m \end{cases}$

(3) Use integration by parts to verify (the hard way) that: $\int_0^{\pi/2} e^t \sin(t) \, dt = \frac{1}{2}(e^{\pi/2} + 1)$

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