

$$\forall t \in \left[0, \frac{\pi}{2}\right] \quad 0 \leq \cos t \leq 1 \Rightarrow 0 \leq 2 \cos t \leq 2 \quad (1)$$

$$\Rightarrow 3 \leq 3 + 2 \cos t \leq 5$$

$$\forall t \in \left[0, \frac{\pi}{2}\right] \quad 3 \leq 3 + 2 \cos t \leq 5 \quad (2)$$

$$\Rightarrow 9 \leq (3 + 2 \cos t)^2 \leq 25$$

$$\Rightarrow \frac{1}{25} \leq \frac{1}{(3 + 2 \cos t)^2} \leq \frac{1}{9}$$

$$\Rightarrow \int_0^{\frac{\pi}{2}} \frac{1}{25} dt \leq \int_0^{\frac{\pi}{2}} \frac{dt}{(3 + 2 \cos t)^2} \leq \int_0^{\frac{\pi}{2}} \frac{1}{9} dt$$

$$\Rightarrow \frac{1}{25} [t]_0^{\frac{\pi}{2}} \leq \int_0^{\frac{\pi}{2}} \frac{dt}{(3 + 2 \cos t)^2} \leq \frac{1}{9} [t]_0^{\frac{\pi}{2}}$$

$$\boxed{\frac{\pi}{50} \leq \int_0^{\frac{\pi}{2}} \frac{dt}{(3 + 2 \cos t)^2} \leq \frac{\pi}{18}} \quad \text{إذن :}$$

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