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This month's "free sample" is:

4010. *Proposed by Ovidiu Furdui.*

Let $f : [0, \frac{\pi}{2}] \rightarrow \mathbb{R}$ be a continuous function. Calculate

$$\lim_{n \rightarrow \infty} n \int_0^{\frac{\pi}{2}} \left(\frac{\cos x - \sin x}{\cos x + \sin x} \right)^{2n} f(x) dx.$$

.....

4010. *Proposé par Ovidiu Furdui.*

Soit f une fonction à valeurs réelles définie et continue sur l'intervalle $[0, \frac{\pi}{2}]$. Calculer

$$\lim_{n \rightarrow \infty} n \int_0^{\frac{\pi}{2}} \left(\frac{\cos x - \sin x}{\cos x + \sin x} \right)^{2n} f(x) dx.$$

