

$$= \int_0^{2\pi} \left(\left(\frac{1}{2} + 1 \right) s s + (s^3 + c^3) s^3 + \left(2 - \frac{1}{2} \right) s c \right) d\theta = 0$$

assuming that $\varphi \in C^0([0, 2\pi])$ t.c.

$$\varphi(\theta + 2\pi) = \varphi(\theta); \quad \varphi(\theta + \pi) = -\varphi(\theta)$$

$$\Rightarrow \int_0^{2\pi} \varphi(\theta) d\theta = 0$$