

Erreur fin du diapo

linéariser

$$\cos(3x) \cdot \sin(5x) = \frac{1}{2} (\sin(8x) + \sin(2x))$$

$$I = \int_0^{\pi/4} \cos(3x) \sin(5x) dx$$

$$= \frac{1}{2} \int_0^{\pi/4} (\sin 8x + \sin 2x) dx$$

$$= \frac{1}{2} \left[-\frac{\cos 8x}{8} - \frac{\cos 2x}{2} \right]_0^{\pi/4}$$

$$= \frac{1}{2} \left(-\frac{\cos 2\pi}{8} - \frac{\cos \pi/2}{2} - \left(-\frac{\cos 0}{8} - \frac{\cos 0}{2} \right) \right)$$

$$= \frac{1}{2} \left(-\frac{1}{8} - \left(-\frac{1}{8} - \frac{1}{2} \right) \right) = \frac{1}{2} \left(-\frac{1}{8} + \frac{1}{8} + \frac{1}{2} \right) = \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$$

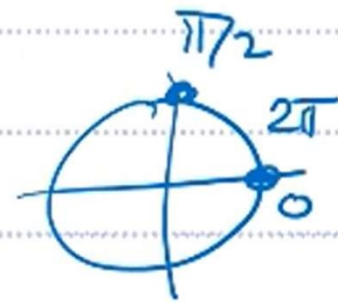
$$= \frac{1}{4j} (e^{3jx} + e^{-3jx}) (e^{5jx} - e^{-5jx})$$

$$= \frac{1}{4j} (e^{8jx} - e^{-2jx} + e^{2jx} - e^{-8jx})$$

$$= \frac{1}{4j} (e^{8jx} - e^{-8jx} + e^{2jx} - e^{-2jx})$$

$$= \frac{1}{4j} (2j \sin(8x) + 2j \sin(2x))$$

$$= \frac{2j}{4j} (\sin(8x) + \sin(2x))$$



EULER.

$$e^{j\theta} - e^{-j\theta} = 2j \sin \theta$$