

similar problem,

$$\int \cos^2(5x) dx,$$

A.C.I

From the integration table,

$$\int \cos^2(mx) dx = \frac{1}{2m} (mx + \sin(mx) \cos(mx)) + C$$

A.C.I, For $m = 5$,

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$$= \frac{1}{10} (5x + \sin(5x) \cos(5x)) + C$$

For

$$\int_0^{\pi} \cos^2(5x) dx = \left[\frac{1}{10} (5x + \sin(5x) \cos(5x)) \right]_0^{\pi}$$

$$= \left[\frac{1}{10} (5\pi + \sin(5\pi) \cos(5\pi)) - \frac{1}{10} (0 + \sin 0 \cdot \cos 0) \right]$$

$$= \frac{1}{10} (5\pi + (0) \cdot (-1))$$

$$= \frac{5\pi}{10} = \frac{\pi}{2} //$$