



Mi Universidad

Ensayo

Nombre del Alumno manuel Alfaro zamorano

Nombre del tema investigación

Parcial

Nombre de la Materia

Nombre del profesor

Nombre de la Licenciatura

Cuatrimestre 6

$$\int_{-\pi}^{\pi} \frac{\cos x}{2} dx = \int_{-\pi}^{\pi} \left(1 + \cos \frac{x}{2} \right) dx$$

$$= \left[x + 2 \sin \frac{x}{2} \right]_{-\pi}^{\pi} = \left[\pi + 2 \sin \left(\frac{\pi}{2} \right) \right] - \left[-\pi + 2 \sin \left(-\frac{\pi}{2} \right) \right]$$

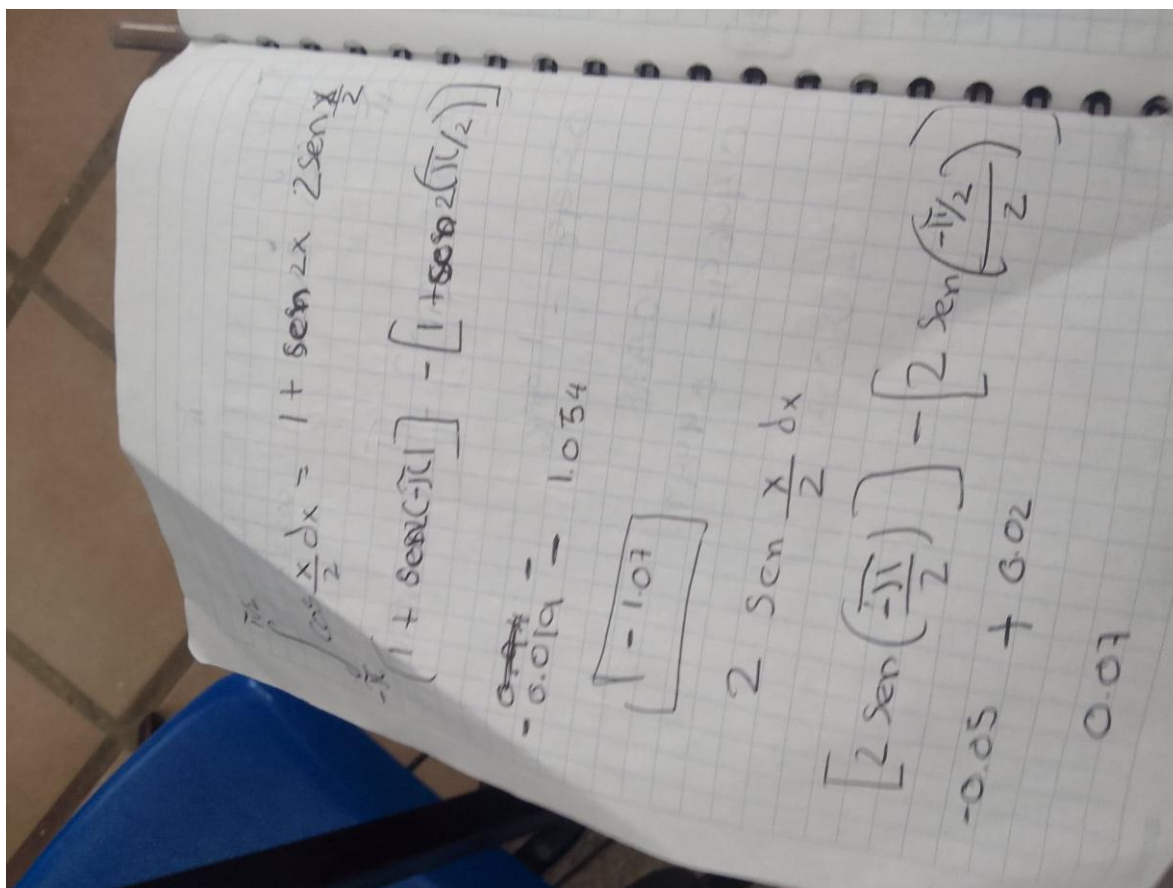
$$= \pi + 2 - (-\pi - 2) = 2\pi + 4$$

$$= 2(3.14159) + 4 = 10.28318 + 4 = 14.28318$$

$$\int_{-\pi}^{\pi} \cos \frac{x}{2} dx = \left[2 \sin \frac{x}{2} \right]_{-\pi}^{\pi} = 2 \left[\sin \left(\frac{\pi}{2} \right) - \sin \left(-\frac{\pi}{2} \right) \right]$$

$$= 2 [1 - (-1)] = 2(2) = 4$$

$$14.28318 + 4 = 18.28318$$



$$\int_{\pi/2}^{\pi} \frac{1}{x} \cos x dx$$

$$u = \cos x \quad du = -\sin x dx$$

$$v = \ln x \quad dv = \frac{1}{x} dx$$

$$\ln x \cos x - \int \sin x \ln x dx$$

$$\ln x \cos x - \int -\frac{1}{x} \cos x dx + \frac{1}{x} \sin x$$

$$\ln x \cos x - \ln x \cos x + \left[\frac{\sin x}{x} \right]_{\pi/2}^{\pi}$$

$$0.017 - \approx 0.025$$

$$0.017 + 0.025 \approx 0.042$$

$$\int_{-\pi/2}^{\pi/2} \frac{1}{x} \cos x dx$$

$$u = \cos x \Rightarrow \frac{du}{dx} = -\sin x$$

$$v = \ln x \Rightarrow \frac{dv}{dx} = \frac{1}{x}$$

$$\int u dv = uv - \int v du$$

$$\int \cos x \ln x dx = \cos x \ln x - \int \ln x (-\sin x) dx$$

$$\int \cos x \ln x dx = \cos x \ln x + \int \ln x \sin x dx$$

$$\int \ln x \sin x dx = \left[\frac{1}{2} \sin x \right]_{-\pi/2}^{\pi/2} - \int \frac{1}{2} \cos x dx$$

$$= \left[\frac{1}{2} \sin x \right]_{-\pi/2}^{\pi/2} - \left[\frac{1}{2} \cos x \right]_{-\pi/2}^{\pi/2}$$

$$= \left[\frac{1}{2} (1) - \frac{1}{2} (-1) \right] - \left[\frac{1}{2} (1) - \frac{1}{2} (-1) \right]$$

$$= \left[\frac{1}{2} + \frac{1}{2} \right] - \left[\frac{1}{2} + \frac{1}{2} \right]$$

$$= 1 - 1 = 0$$

$$0.017 - 0.025 = 0.042$$

$$\int_{-\pi}^{\pi} \sin 2x \, dx = \int_{-\pi}^{\pi} \frac{1}{2} \cos 2x \, dx$$

$$= \left[\frac{1}{2} \cos 2x \right]_{-\pi}^{\pi} = \left[\frac{1}{2} \cos 2(\pi) \right] - \left[\frac{1}{2} \cos 2(-\pi) \right]$$

$$= 0.4998 - 1.996$$

$$= -0.9998$$

$$= 0.4969 - 0.9999$$

$$= -0.003$$

$$\int_{-\pi/2}^{\pi/2} \frac{1}{x} \cos x dx$$

$$u = \cos x \Rightarrow du = -\sin x dx$$

$$v = \ln x \Rightarrow dv = \frac{1}{x} dx$$

$$\ln x \cos x - \int \sin x \ln x dx$$

$$\ln x \cos x - \int -\frac{1}{x} \cos x dx$$

$$\ln x \cos x - \ln x \cos x + \int \frac{1}{x} \sin x dx$$

$$\left[\frac{1}{x} \sin x \right]_{-\pi/2}^{\pi/2} + \left[\frac{1}{x} \right]_{-\pi/2}^{\pi/2} \sin \left(\frac{\pi}{2} \right)$$

$$0.017 - \approx 0.025$$

$$0.017 + 0.025 \approx 0.042$$