*Ex ~ (Same as previous version)

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∴ $x \perp \cos x$

- Find the angle bet. x and $\sin x$

$$\langle x, \sin x \rangle = \int_{-1}^{1} x \cdot \sin x \, dx = 2(\sin 1 - \cos 1) \approx .60233$$

$$\|x\| = \sqrt{\int_{-1}^{1} x^2 dx} = \sqrt{\frac{2}{3}} \approx .8165$$

$$\|\sin x\| = \sqrt{\int_{-1}^{1} (\sin x)^2 dx} = \sqrt{1 - \sin 1 \cdot \cos 1} \approx .7385$$

$$\cos\theta = \frac{\langle u, v \rangle}{\|u\| \cdot \|v\|} = \frac{.60233}{.8165 \times .7385} \approx \frac{.60233}{.60298} \approx .9985$$

$$\Rightarrow \theta = \cos^{-1}(.9985) \approx .04565 \text{ (rad)} \approx 2.615^\circ \ \#$$