

14.08

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$$y = \sin x + 2 \cos x$$

$$V = \int_0^{\pi/2} \pi (\sin x + 2 \cos x)^2 dx = \int_0^{\pi/2} \pi (\sin^2 x + 2 \sin x \cos x + 4 \cos^2 x) dx = \int_0^{\pi/2} \pi (1 + 2 \sin 2x + 3 \cos^2 x) dx = \pi \int_0^{\pi/2} 1 + 2 \sin 2x + 3 \left(\frac{1 + \cos 2x}{2} \right) dx =$$

$$= \pi \left[x - \cos 2x + \frac{3}{2} x - \frac{3}{4} \sin 2x \right]_0^{\pi/2} = \pi \left[\frac{5}{2} x - \cos 2x - \frac{3}{4} \sin 2x \right]_0^{\pi/2} = \pi \left(\frac{5\pi}{4} + 1 - 0 - \left(0 - 1 - 0 \right) \right) = \pi \frac{5\pi + 8}{4} \text{ v.e}$$