

$$\begin{aligned}\int_0^4 \int_0^{\pi/2} x \sin(y) \, dy \, dx &= \int_0^4 x \, dx \int_0^{\pi/2} \sin(y) \, dy \\ &= \left[\frac{x^2}{2} \right]_0^4 \left[-\cos(y) \right]_0^{\pi/2} \\ &= (8 - 0)(0 + 1) = 8\end{aligned}$$