

# MAT 91122 Opgave E9

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Vi finder

$$\begin{aligned}\int \int_S y^2 \cos x dA &= \int_0^{\frac{\pi}{2}} dx \int_0^{\sin x} y^2 \cos x dy \\&= \int_0^{\frac{\pi}{2}} \left[ \frac{1}{3} y^3 \cos x \right]_0^{\sin x} dx = \int_0^{\frac{\pi}{2}} \frac{1}{3} \sin^3 x \cos x dx \\&= \left[ \frac{1}{12} \sin^4 x \right]_0^{\frac{\pi}{2}} = \frac{1}{12}.\end{aligned}$$