Answer on Question #68714 - Math - Calculus

Simply use integration by parts twice:
$\int_0^{\frac{\pi}{2}} x^2 \cos x \ \mathrm{d}x = \int_0^{\frac{\pi}{2}} x^2 \ \mathrm{d}\sin x = x^2 \sin x|_0^{\frac{\pi}{2}} - 2\int_0^{\frac{\pi}{2}} x \sin x \ \mathrm{d}x = \frac{\pi^2}{4} + 2\int_0^{\frac{\pi}{2}} x \ \mathrm{d}\cos x =$
$\frac{\pi^2}{4} + 2x\cos x|_0^{\frac{\pi}{2}} - 2\int_0^{\frac{\pi}{2}} \cos x \ \mathrm{d}x = \frac{\pi^2}{4} - 2\sin x|_0^{\frac{\pi}{2}} = \frac{\pi^2}{4} - 2$

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