b) Integrationsgrenzen bei bestimmten Integralen

Beispiel: $\int_0^{\pi/4} \cos 2x \, dx$, Substitution: $u = 2x$

$dx = \frac{1}{2} du$

Grenzen: $x = 0 \rightarrow u = 0$

$x = \frac{\pi}{4} \rightarrow u = \frac{\pi}{2}$

$$= \frac{1}{2} \sin u \Big|_{x=0}^{x=\frac{\pi}{4}} = \frac{1}{2} \sin 2x \Big|_{x=0}^{x=\frac{\pi}{4}} = \frac{1}{2} \sin \frac{\pi}{2} = \frac{1}{2}$$

$$= \frac{1}{2} \sin u \Big|_{u=0}^{u=\frac{\pi}{2}} = \frac{1}{2} \sin \frac{\pi}{2} = \frac{1}{2}$$