

## Homework 29 ad

$$\int \sin^3 x \, dx = \int \sin^2 x \sin x \, dx \quad u = \cos x$$

$$= \int \cos^2 x - 1 \, dx$$

$$= \int u^2 dx - \int 1 dx$$

$$= \frac{u^3}{3} - u$$

$$= \frac{\cos^3 x}{3} - \cos x + C$$

$$\int \cos^3 x \, dx = \int \cos^2 x \cos x \, dx \quad u = \sin x$$

$$= \int 1 - \sin^2 x \, dx$$

$$= \int 1 dx - \int u^2 dx$$

$$= u - \frac{u^3}{3}$$

$$= \sin x - \frac{\sin^3 x}{3} + C$$