

Exempel B1.7. Avgör om

$$\int_0^1 \frac{1+x}{x^2+x^3} dx$$

är konvergent.

Lösning: End. gen. i 0, positiv integrand.

( $1+x \approx 1$ ,  $x^2+x^3 \approx x^2$  di  $x \approx 0$ , så  $\frac{1+x}{x^2+x^3} \approx \frac{1}{x^2}$  di  $x \approx 0$ .  $\int_0^1 \frac{1}{x^2} dx = \infty$ .)

$$1+x \geq 1, \quad 0 < x < 1$$

$$x^2+x^3 \leq x^2+x^2 = 2x^2, \quad 0 < x < 1$$

$$0 \leq \int_0^1 \frac{1}{2x^2} dx = \infty \leq \int_0^1 \frac{1+x}{x^2+x^3} dx$$

$$\frac{1+x}{x^2+x^3} \geq \frac{1}{2x^2} \geq 0 \text{ di } 0 < x < 1.$$

SVAR: Divergent.