

Oef 1 (36)

$$\int \frac{\sqrt{x}}{1+\sqrt[4]{x^3}} dx$$

$x^{\frac{1}{2}}$ ,  $x^{\frac{3}{4}}$   $\Rightarrow$  Stel  $x = t^{\text{kgv}(2,4)} = t^4$

$$\Rightarrow dx = 4t^3 dt$$

$$\int \frac{t^2}{1+t^3} \cdot 4t^3 dt = 4 \int \frac{t^5}{t^3+1} dt$$

Step 1: gr T  $\geq$  gr N? JA  $\rightarrow$  Eucl. deling

$$\begin{array}{r} t^5 \quad 5 \\ t^5 + t^2 \\ \hline -t^2 \end{array} \quad \begin{array}{r} 3 \\ t^3 + 1 \\ \hline t^2 \end{array}$$

$$= 4 \int \left( t^2 - \frac{t^2}{t^3+1} \right) dt$$

$$= 4 \int t^2 dt - 4 \int \frac{t^2}{t^3+1} dt$$

$$= 4 \frac{t^3}{3} - \frac{4}{3} \int \frac{du}{u} \quad \begin{array}{l} u = t^3+1 \\ du = 3t^2 dt \end{array}$$

$$= \frac{4}{3} t^3 - \frac{4}{3} \ln |t^3+1| + C$$

$$= \frac{4}{3} \sqrt[4]{x^3} - \frac{4}{3} \ln |\sqrt[4]{x^3}+1| + C$$