

NIKORIE PASCAL CANAUDI

19/ENGL051043

MECHATRONICS ENGINEERING

CLASSWORK MAT 104.

a) $\frac{dx}{x^2+7}$ b) $\frac{dx}{x^2+64}$

Soln

a) $\int \frac{1}{x^2+7} dx$ $\Rightarrow u = x^2+7$
 $\frac{du}{dx} = 2x \Rightarrow dx = \frac{du}{2x}$

$= \int \frac{1}{u} dx = \int \frac{1}{u} \frac{du}{2x}$

$= \frac{1}{2} \int x^{-1} u^{-1} = \frac{1}{2} [\ln x \cdot \ln(x^2+7)] + C$

b) $\int \frac{1}{x^2+64} dx$ $\Rightarrow u = x^2+64$
 $\frac{du}{dx} = 2x \Rightarrow dx = \frac{du}{2x}$

$\int \frac{1}{u} dx = \int \frac{du}{2xu}$

$\frac{1}{2} \int x^{-1} u^{-1} = \frac{1}{2} [\ln x \cdot \ln(x^2+64)] + C$