

$$f(x) = \int_{-4}^x \sqrt{t^3 + 64} dt$$

Solution

Fundamental theorem with variable

$$\int_{-4}^x \sqrt{t^3 + 64} dt = \left( \frac{t^3}{3} + 64 \right)^{1/2}$$

All 1 did was change  $t$  to  $x$  and get rid of the integrals due to the theorem.