CALCULUS
Fundamental Theorem of Calculus

The **Fundamental Theorem of Calculus:**
If f is continuous on $[a, b]$, and F is any function such that $F'(x) = f(x)$ for every x in $[a, b]$, then

$$\int_a^b f(x)dx = F(b) - F(a).$$

(1) By the FTC, write out an expression for $\displaystyle\int_a^b \cos(x)dx$.

(2) By the FTC, write out an expression for $\displaystyle\int_\triangle^\heartsuit \left(6t - 4\sqrt[3]{t^2}\right) dt$.

(3) If F is the antiderivative of $f(x)$, write out an expression for $\displaystyle\int_{x-4}^{x^2} f(m)dm$.