Consider the function B defined by the rule $B(x) = \int_1^x f(t)\ dt$ where $f(t) = 6 - 2t$.

1. Compute $B(1)$ and $B(2)$ exactly.
2. Use the first Fundamental Theorem of Calculus to find a formula for $B(x)$ that does not involve integrals. That is, use the first FTC to evaluate $\int_1^x (6 - 2t)\ dt$.
3. Observe that f is a linear function; what kind of function is B?
4. Using the formula that you found in part (b) that does not involve integrals, compute $B'(x)$.
5. While we have defined f by the rule $f(t) = 6 - 2t$, it is equivalant to say that f is given by the rule $f(x) = 6 - 2x$. What do you observe about the relationship between B and f?