Quiz   **Name**

1. Let $y = f(x)$ be a function defined over an interval $a \leq x \leq b$. Describe (in mathematical notation) the process that provides the meaning of the definite integral $\int_a^b f(x)\, dx$ by interpreting it as a sum of n terms where n is a huge number. (Do so "in the abstract" without making use of graphs, or rectangles, and without mentioning areas or the fundamental theorem of calculus.)

2. Approximate $\int_0^6 (40 - x^2)\, dx$ by carrying out this process with the small number $n = 6$. Use the Fundamental Theorem of Calculus to determine the precise value. Sketch the graph of the function involved.