1. Define the following:

   a) A step function s on $[a, b]$.

   b) $\int_a^b s(x)\, dx$ where s is a step function on $[a, b]$.

   c) $\int_a^b f(x)\, dx$ where f is a bounded function on $[a, b]$.

2. State and prove the Linearity Property for integrals of step functions.

3. Let s and t be step functions such that $\int_{-1}^{3} s(x)dx = 2$ and $\int_{0}^{1} t(x)dx = 3$.

   Determine the value of $\int_{0}^{4} 5s(x-1) + t(x/4)\,dx$. (Justify your steps).