1. [12 points] Indicate if each of the following is true or false by circling the correct answer. No justification is required.

a. [2 points] If $\int_0^2 3f(x)+1\ dx = 8$, then $\int_0^2 f(x)\ dx = 2$.

True False

b. [2 points] If $\int_a^b f(x)dx = 2$ and $\int_a^b g(x)dx = -3$ then $\int_a^b f(x)g(x)dx = -6$.

True False

c. [2 points] If $f(x) = \int_{-2x}^0 \sqrt{1+t^4}dt$ then $f(x)$ is increasing.

True False

d. [2 points] If $\int_0^1 f(x)dx \leq \int_0^1 g(x)dx$ then $f(x) \leq g(x)$ for $0 \leq x \leq 1$.

True False

e. [2 points] If $g(x)$ is odd and $\int_1^3 g(x)dx = 2$, then $\int_{-3}^1 g(x)dx = -2$.

True False

f. [2 points] If $f(t)$ is measured in dollars per year, and t is measured in years, then $\int_a^b f(t)dt$ is measured in dollars per years squared.

True False