7. [6 points] Suppose that g is a continuous function, and define another function G by

$$G(x) = \int_0^x g(t)\, dt.$$

Given that $\int_0^7 g(x)\, dx = 5$, compute

$$\int_0^7 g(x)(G(x))^2\, dx.$$

Show each step of your computation.

8. [6 points] Suppose that f is a continuous, **odd** function, and define another function F by

$$F(x) = \int_{-12}^x f(3t - c)\, dt,$$

where c is some constant. You do not need to show your work for this problem.

a. [3 points] Find a value of c for which the graph of F goes through the origin.

b. [3 points] Find a value of c for which the graph of F' goes through the origin.