

3. [14 points] Consider functions  $f(x)$  and  $g(x)$  satisfying:

(i)  $g(x)$  is an odd function.

(ii)  $\int_2^7 g(x) dx = 3.$

(iii)  $\int_2^7 f(x) dx = 17.$

(iv)  $f(2) = 1.$

(v)  $\int_1^6 f'(x) dx = 12.$

(vi)  $\int_2^7 f'(x) dx = 3.$

Compute the value of the following quantities. If it is impossible to determine their value with the information provided above, write “NI” (not enough information).

a. [2 points]  $\int_{-2}^7 g(x) dx = \underline{\hspace{2cm}}$

b. [2 points]  $\int_2^7 (f(x) - 8g(x)) dx = \underline{\hspace{2cm}}$

c. [2 points]  $f(7) = \underline{\hspace{2cm}}$

d. [2 points]  $\int_1^6 f'(x+1) dx = \underline{\hspace{2cm}}$

e. [3 points]  $\int_2^7 x f'(x) dx = \underline{\hspace{2cm}}$

f. [3 points]  $\int_2^3 x f(x^2 - 2) dx = \underline{\hspace{2cm}}$