1. [16 points] Suppose $g(x)$ is a function with the following properties:

- $\int_5^1 g(x)dx = 7.$

- $\int_3^5 g(x)dx = -3.$

- $g(x)$ is odd.

In addition, a table of values for $g(x)$ is given below.

x	0	1	2	3	4	5
$g(x)$	0	2	-1	-3	-1	1

Calculate (a)-(c) **exactly**. Show your work and do not write any decimal approximations.

a. [4 points] $\int_1^{\sqrt{3}} xg(x^2)dx.$

b. [4 points] $\int_1^5 xg'(x)dx.$

c. [3 points] The average value of $g(x)$ on $[-5, -1]$.

d. [5 points] Approximate

$$\int_2^4 xg(x)dx$$

using TRAP(2). Write out all the terms of your sum and your final answer.