

Name _____

Homework 5
section 7.5 & 7.6

1. (14) Use all five numerical integration methods with the appropriate n to approximate $\int_1^4 f(x) dx$ for the function whose values are given in the table below.

x	1.0	1.5	2.0	2.5	3.0	3.5	4.0
$f(x)$	2.5	1.125	0.5	1.375	4.5	10.625	20.5

List your answers here, and show your work below and on the back of this page.

LEFT(6)=_____ MID(3)=_____ SIMP(3)=_____

RIGHT(6)=_____ TRAP(3)=_____

2. (2ea) Sketch a graph for each of the following descriptions. [While you don't have to produce a work of art, please make an effort to draw neatly and clearly convey what you are trying to.]

(a) $f(x)$ is a function for which, on the interval $[-1, 7]$, $\text{LEFT}(8) < \int_{-1}^7 f(x) dx < \text{RIGHT}(8)$ and $\text{TRAP}(4) < \int_{-1}^7 f(x) dx < \text{MID}(4)$.

(b) $f(x)$ is a function for which, on the interval $[1, 5]$, $\text{LEFT}(3) > \text{RIGHT}(3)$, and $\text{TRAP}(3) = \text{MID}(3) = \text{SIMP}(3) = \int_1^5 f(x) dx$.

(c) $g(x)$ is a function where, on the interval $[0, 5]$, the error from the left rule is positive, and the error from the midpoint rule is negative.