Riemann Sum

Use table for #'s 1-2. Find the following Riemann sum for the given n based on the given table of values:

Left, Right, Midpoint, and Trapezoidal.

x	0	2	4	6	8	10	12	14	16
$f(x)$	3	5	9	14	15	19	25	28	30

1. n =2

2. n = 4

3. Looking at the values given, does R_l under or over approximate compared the actual area under the curve?

4. Given $f(x) = x^2$, Find all 4 Riemann sums with n=6 in the interval from [1,4].

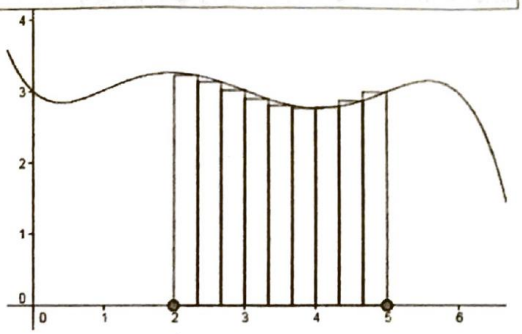
5.

Use the graph to answer 1-3.

1. Is the rectangular approximation shown to the right a left endpoint, right endpoint, or midpoint approximation?

2. Is the approximation less than or greater than the true value?

3. What is the width of each rectangle?



6.

Use the information provided to answer the following.

11. Let $y(t)$ represent the rate of change of the population of a town over a 20-year period, where y is a differentiable function of t. The table shows the population change in people per year recorded at selected times.

Time (years)	0	4	10	13	20
$y(t)$ (people per year)	2500	2724	3108	3697	4283

a. Use the data from the table and a right Riemann Sum with four subintervals to approximate the area under the curve.

b. What does your answer from part (a) represent?

c. Assuming that $y(t)$ is a continuous increasing function, is your approximation from part (a) greater or less than the true value?