

Riemann Sums Practice

x	1	3	5	7	9
$h(x)$	2	3	3	4	5

1. Using the table of values shown above for the continuous function $h(x)$, which of the following is the approximation of the area under the curve $h(x)$ using midpoint sum with 2 equal subintervals?

(A) 34 (B) 30 (C) 28 (D) 27 (E) 24

2. The rate R at which a solar panel delivers electricity is a differentiable function of time t . The table below shows a sample of these rates, which can be modeled as a strictly increasing function on $4 \leq t \leq 16$, over an 18-hour period. Use a right Riemann sum with 6 equal subdivisions to approximate the number of amps delivered by the panel from $t = 4$ to $t = 16$. Is this approximation an overestimate or underestimate of the actual number of amps?

t (hours)	4	6	8	10	12	14	16	18	20	22
$R(t)$ (amps/hour)	36	78	160	240	320	350	360	320	240	160

3. Suppose the graph of f is decreasing on $a \leq x \leq b$. Then, using the same number of subdivisions, and with L, R, and M denoting, respectively, left, right and midpoint Riemann sums, it follows that:

(A) $R \leq M \leq L$ (B) $R \leq L \leq M$ (C) $L \leq M \leq R$ (D) $L \leq R \leq M$ (E) none of these