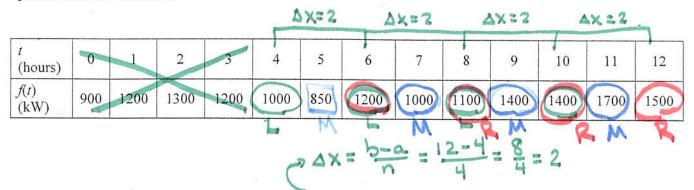
Readings of the power being used at a given time are taken at hourly intervals at an electric substation. The units of power are in kilowatts (kW) and the hourly readings over a 12-hour period are shown below.



a) Using a left sum approximation with 4) equally spaced subintervals, approximate the power usage from time t = 4 to t = 12.

b) Using a right sum approximation with 4 equally spaced subintervals, approximate the power usage from time t = 4 to t = 12.

c) Using a midpoint approximation with $\underline{4}$ equally spaced subintervals, approximate the power usage from time $t = \underline{4}$ to t = 12.

x	ı ı	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 left sum with 4 equal subintervals?
 - (A) 34
- (B) 30
- (C) 28
- (D) 27

left sum =
$$2(2) + 2(3) + 2(3) + 2(4)$$
...
= $4 + 6 + 6 + 8$
= 24

- 2. 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 right sum with 4 equal subintervals?
- (B) 30
- (C) 28
- (D) 27
- (E) 24

- 3. 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

4. A function f is continuous on [1,5] and some of the values of f are shown below:

	AX	=3 A	X=
x	1	4	5
f(x)	7	b	2

If the right Riemann sum is 17, then the value of b is:



(E) 5

(A)
$$-4$$
 (B) 0 (C) 3 (D) 4.25
right sum = $\Delta x \cdot f(5) + \Delta x \cdot f(4)$
 $17 = 1 \cdot 2 + 3 \cdot b$
 $17 = 2 + 3b$
 $15 = 3b$
 $5 = b$