

PROBLEM

The function $f(x) = \sum_{K=1}^5 (x-K)^2$ assumes the minimum value of x given by

a. 5

b. $\frac{5}{2}$

c. 3

d. 2

SOLUTION

c. $f(x) = (x-1)^2 + (x-2)^2 + (x-3)^2 + (x-4)^2 + (x-5)^2$

$$f'(x) = 2[x-1 + x-2 + x-3 + x-4 + x-5] = 2[5x-15]$$

$f'(x) = 0$ gives $x = 3$ and $f''(x) > 0$ for all x .

Thus, $f(x)$ is minimum for $x = 3$.