Answer on Question #65780 – Math – Calculus

Question

The annual inventory cost of C for a manufacturer is given by

$$C = \frac{2000000}{x} + 500x,$$

where x is the number of items that are ordered each item.
Find $C(200)$ and $C'(200)$, and interpret the result.

Solution

$$C(200) = \frac{2000000}{200} + 500 \cdot 200 = 110000$$

$$C'(x) = -\frac{2000000}{x^2} + 500$$

$$C'(200) = -\frac{2000000}{200^2} + 500 = 450$$

$C(200)$ means the cost of 200 items.

$C'(200)$ means the rate of cost is 450 if the number of items is 200.

Answer:

$C(200) = 110000, \quad C'(200) = 450$