Answer on Question #66057 – Math – Financial Math

Question

A bakery bakes cakes the manageress does not know the cost of each cake. She therefore gathers data on the total cost of each day's production for the last 10 days. The results are shown in the table below;
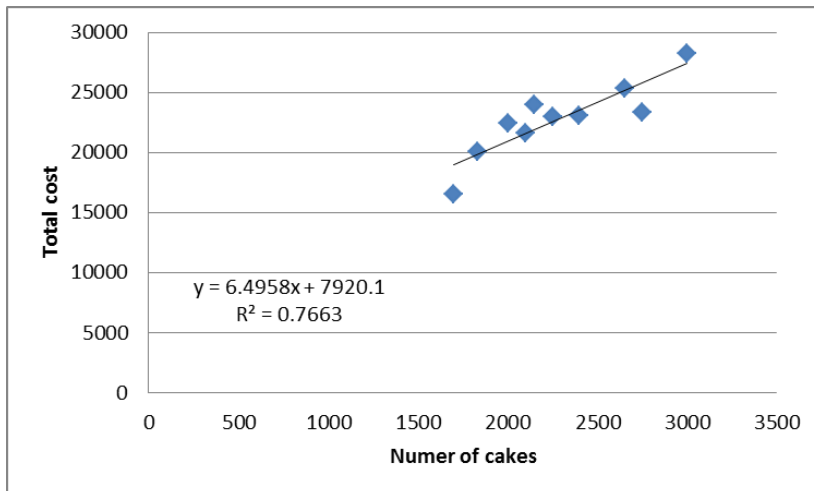
Day	number of cakes (00 units)	Total costs (SH 000)
1	22.5	23.0
2	21.0	21.6
3	27.5	23.3
4	21.5	24.0
5	30.0	28.2
6	20.0	22.4
7	24.0	23.1
8	26.5	25.3
9	18.3	20.1
10	17.0	16.5

Required

(1) estimate the total cost function using the ordinary least squares method . State the fixed cost and unit cost?

(2) If each cake is sold at SH 10, determine the breakeven number of cakes?

Solution

(1)

The least squares line: $y = 6.4958x + 7920.1$.

Fixed cost: SH 7920.1.

Unit cost: SH 6.4958.

(2) $10x = 6.4958x + 7920.1 \rightarrow x = \frac{7920.1}{10-6.4958} = 2260$ cakes.

Answer: (1) $y = 6.4958x + 7920.1$; SH 7920.1; SH 6.4958; **(2)** 2260 cakes.