

“Education for Knowledge, Science and Culture.”

— Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE, KOLHAPUR (AUTONOMOUS)

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Problem with solution - Break Even Point



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Problem

If sales Rs. 20,00,000 , Variable cost Rs. 15,00,000 , Fixed cost Rs. 2,00,000 ,

Calculate –

1. Contribution
2. P/V Ratio
3. BEP
4. Sales required to earn profit Rs. 5,00,000
5. Profit when sales Rs. 25,00,000
6. Margin of safety

Solution

**sales Rs. 20,00,000 , Variable cost Rs.15,00,000*

$$\begin{aligned}\text{Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= 20,00,000 - 15,00,000 \\ &= 5,00,000\end{aligned}$$

Profit Volume Ratio (P/V Ratio)

**sales Rs. 20,00,000 , Contribution 5,00,000*

$$\text{Profit Volume Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{5,00,000}{20,00,000} \times 100$$

$$= 25\%$$

Break Even Point (BEP)

**Fixed cost Rs. 2,00,000 , P/V Ratio 25%*

$$\begin{aligned}\text{Break Even Point (in Rs.)} &= \frac{\text{Total Fixed Cost}}{\text{Profit Volume Ratio}} \\ &= \frac{2,00,000}{25\%} \\ &= 8,00,000\end{aligned}$$

Desired Sales

**Fixed cost Rs. 2,00,000 , P/V Ratio 25%, Desired Profit Rs. 5,00,000*

$$\begin{aligned}\text{Desired Sales} &= \frac{\text{Desired Profit} + \text{Fixed Cost}}{\text{Profit Volume Ratio}} \\ &= \frac{5,00,000 + 2,00,000}{25\%} \\ &= 28,00,000\end{aligned}$$

Desired Profit

**Fixed cost Rs. 2,00,000 , P/V Ratio 25%, Desired sales Rs. 25,00,000*

$$\text{Desired Sales} = \frac{\text{Desired Profit} + \text{Fixed Cost}}{\text{Profit Volume Ratio}}$$

$$25,00,000 = \frac{\text{Desired Profit} + 2,00,000}{25\%}$$

$$= 25,00,000 \times 25\% = \text{Desired Profit} + 2,00,000$$

$$\begin{aligned}\text{Desired Profit} &= 6,25,000 - 2,00,000 \\ &= 4,25,000\end{aligned}$$

$$\text{Desired Profit} = (\text{Desired Sales} \times \text{PV Ratio}) - \text{Fixed Cost}$$

OR

$$\begin{aligned}\text{Desired Profit} &= (25,00,000 \times 25\%) - 2,00,000 \\ &= 6,25,000 - 2,00,000 \\ &= 4,25,000\end{aligned}$$

Margin of Safety

Margin of Safety = Actual Sales – BEP Sales

$$= 20,00,000 - 8,00,000$$

$$= 12,00,000$$