What Is Cost-Volume-Profit (CVP) Analysis?

Worksheet

CVP analysis calculates how many units must be sold to cover fixed and variable costs (break-even), and how profit changes as volume changes. Formula: Break-even = Fixed Costs / (Price Variable Cost per unit).

Break-even point = FC / (P - VC)

Questions

1. A product sells for $100, variable cost is $40, fixed costs are $6,000. Break-even units?

A) 100 units
B) 150 units
C) 60 units
D) 600 units

2. CVP analysis assumes all of the following EXCEPT:

A) Prices remain constant
B) All units produced are sold
C) Variable cost per unit is constant
D) Market demand is unlimited

3. If fixed costs rise by 50%, break-even point

A) Doubles
B) Increases by 50%
C) Decreases
D) Stays the same

4. At break-even, profit is:

A) Maximum
B) Zero
C) Negative
D) Equals fixed costs

5. A caf has $3,000 fixed costs (rent, salary). Each coffee costs $2 to make and sells for $5. Break-even units?

6. At 1,200 coffees sold (continuing caf example), what is profit?

7. Caf raises coffee price to $6. New break-even?

8. Define: What is CVP analysis used for?

9. Define: What is break-even point?

10. Define: How do fixed costs differ from variable costs?

Answer Key

1. A) 100 units - Break-even = $6,000 / ($100 $40) = $6,000 / $60 = 100 units.

2. D) Market demand is unlimited - CVP doesn't assume unlimited demand - real markets have limits.

3. B) Increases by 50% - Break-even = FC / Contribution Margin. Higher FC proportionally higher break-even.

4. B) Zero - Break-even is where Revenue = Total Cost, so profit = 0.

5. Break-even = FC / (P VC) Break-even = $3,000 / ($5 $2) Break-even = $3,000 / $3 = 1,000 coffees

6. Total Revenue = 1,200 $5 = $6,000 Total Variable Cost = 1,200 $2 = $2,400 Total Cost = $3,000 + $2,400 = $5,400 Profit = $6,000 $5,400 = $600

7. Break-even = $3,000 / ($6 $2) Break-even = $3,000 / $4 = 750 coffees (Lower units needed higher profit at same volume)

8. To find the break-even point and understand how changes in price, costs, and volume affect profit.

9. The sales volume where total revenue equals total cost, and profit is zero.

10. Fixed costs stay the same regardless of volume (rent); variable costs change with volume (materials).