

Key Metrics and Terms From Chapter 13

Students should know the definitions of the following metrics and how to solve basic problems and create an income statement involving them:

- Quantity of Units Sold
- Sales Revenue
- Selling Price per Unit
- Total Cost
- Net Profit
- Breakeven Price
- Return on Sales
- Variable Cost per Unit
- Cost of Goods Sold
- Learning Curve
- Fixed Costs or Period Costs
- Marketing Expenses for the Period
- Marketing Expenses to Sales Ratio
- Marketing Overheads
- Breakeven Quantity
- Markup
- Markup on Cost per Unit Sold
- Markup on Price per Unit Sold
- Converting Markup on Cost to Markup on Price
- Breakeven Revenue
- Breakeven Markup
- Gross Contribution or Gross Margin
- Gross Return on Sales
- Marketing Contribution
- Marketing Return on Sales
- Marketing Return on Investment or Return on Marketing Expense
- Detailing the Marketing Expenses
- Advertising Expenses
- Consumer Promotions
- Sales Force Expenses
- Dealer Promotions
- Percentage of Advertising to Sales Revenue
- Percentage of Consumer Promotion to Sales
- Percentage of Sales Force Expense to Sales
- Percentage of Dealer Promotion to Sales
- Return on Individual Marketing Expenses

Mini-case

The XYZ Toy Company has a selling price of \$90 per wagon. The variable cost of making each wagon is \$30 per wagon and involves direct materials and labor. The period or fixed costs per month include all the money spent on advertising, consumer promotions, sales force salaries, dealer promotions and research and development. In the past month a total of 40,000 wagons were sold and \$1,000,000 was spent on advertising, \$200,000 was spent on consumer promotions, \$400,000 was spent on the sales force, \$100,000 was spent on dealer promotion. The company also spent \$100,000 on marketing research and \$100,000 on product development. The monthly costs for rent and general overheads were \$250,000.

Hint: It helps to prepare a basic operating or income statement for the month before you answer the following questions on the mini-case:

Quantity sold	
Selling Price	
Revenue	
Cost of Goods Sold	
Gross Profit Margin	
Markup on Price %	
Total Promotion Expenses	
Profit after Marketing	
Research and Development	
Overhead	
Net Profit	
Return on Sales %	

1. Using the information in the mini-case above. What is the sales revenue for the month?

- a) \$40,000
- b) \$1,200,000
- c) \$3,600,000 *
- d) \$2,400,000
- e) \$250,000

Answer: Sales Revenue, R, is the selling price, P, times the quantity sold, Q.

Where $P = \$90$, $Q = 40,000$

$$R = 90 \times 40,000 = 3,600,000$$

2. Using the information in the mini-case above. What is the cost of goods sold (aka total variable cost) for the month?

- a) \$1,700,000
- b) \$1,200,000 *
- c) \$3,600,000
- d) \$2,400,000
- e) \$250,000

Answer: Cost of Goods Sold, COGS, is the product of the variable cost per unit, V, and the quantity sold, Q,

$$\text{COGS} = V \times Q$$

$$\text{COGS} = \$30 \times 40,000 = \$1,200,000$$

3. Using the information in the mini-case above. What is the gross profit margin (aka gross profit contribution) for the month?

- a) \$1,700,000
- b) \$1,200,000
- c) \$3,600,000
- d) \$2,400,000 *
- e) \$250,000

Answer: The gross profit, G, the difference between the Revenue, R, and the Cost of Goods sold, COGS

$$G = R - \text{COGS}$$

$$G = \$3,600,000 - \$1,200,000 = \$2,400,000$$

Since there is a single product, it can also be calculated with the dollar markup per unit, P-V times the quantity sold, Q

$$G = (P - V) \times Q$$

$$G = (90 - 30)40,000 = \$2,400,000$$

4. Using the information in the mini-case above. What is the markup percentage on price for the month?

- a) 69.44%
- b) 66.67% *
- c) 33.33%
- d) 200%
- e) 6.94%

Answer the Markup percentage on Price, Mp is the dollar markup(P-V) divided by the price.

$$M_p = (P - V) / P = (\$90 - \$30) / \$90 = 66.67\%$$

Because it is a single product Markup has the value as the ratio of the gross profit, G, divided by the Revenue, R

$$\text{Gross Profit Ratio} = G / R = \$2,400,000 / \$3,600,000 = 66.67\%$$

5. What is the total of all the promotion costs, TP.

- a) \$1,700,000*
- b) \$1,200,000
- c) \$3,600,000
- d) \$2,900,000
- e) \$3,350,000

Answer: All the elements of the promotions mix used are advertising, AD, Consumer promotion, CP, Sales Force Expense, SF, Deal Promotion Expense, DP

$$TP = AD + CP + SF + DP$$

$$TP = \$1,000,000 + \$200,000 + \$400,000 + \$100,000 = \$1,700,000$$

All the promotion costs are fixed for the month. They do not change with volume of wagons made or sold.

6. What are the total fixed costs for the month (aka the total period costs for month)?

- a) \$1,700,000
- b) \$1,200,000
- c) \$3,600,000
- d) \$2,900,000
- e) \$2,150,000 *

Answer: The sum of all the Total promotion costs, TP, the market research costs, MR, product development cost, PD, rent expense and the overhead costs, OH, are the total fixed costs, F, for the month.

$$F = TP + MR + PD + OH = \$1,700,000 + \$100,000 + \$100,000 + \$250,000 = \$2,150,000$$

In the game there are no rents or general overheads. Total Fixed costs will be total promotion, market research and product development.

7. Using the information in the mini-case above. What is the total cost, TC, for the month?

- a) \$1,700,000
- b) \$1,200,000
- c) \$3,600,000
- d) \$2,900,000
- e) \$3,350,000 *

Answer: Total Cost for the month is the total of all the costs, both fixed and variable.

Total Cost = Total Fixed, F, and Total Cost of Goods Sold, COGS

Total Costs for the month = $F + COGS = \$2,150,000 + \$1,200,000 = \$3,350,000$

This can also be calculated as the difference between total Revenue, R, and net profit, Z.

$TC = R - Z = \$3,600,000 - \$250,000 = \$3,350,000$

8. Using the information in the mini-case above. What is the net profit for the month?

- a) \$1,700,000
- b) \$1,200,000
- c) \$3,600,000
- d) \$2,400,000
- e) \$250,000 *

Answer: The Net Profit, Z, is the difference between the Revenue, R, and the total cost, TC,

$Z = R - TC = \$3,600,000 - \$3,350,000 = \$250,000$

9. Using the information in the mini-case above. What is the net profit margin or return on sales for the month?

- a) 250%
- b) 66.67%
- c) 33.33%
- d) 200%
- e) 6.94% *

Answer: Return on Sales, ROS, is the ratio of the net profit, Z, over the sales Revenue, R.

$ROS = Z/R = 250,000/3,600,000 = 0.0694$ or 6.94%

Look at Chapter 13 in the text for more examples