

More Sample Exam Questions

Questions Needed to Understand the Income Statement

By the end of the term the students need to answer all the questions in chapter 13!

More students lose more points on this Mini-case than any other question!

The definition of markup/the ratio of gross profit to sales and the definition of Return on Sales/net profit margin are crucial to the pricing chapters and playing the New Shoes simulation.

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

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

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.

$$\text{ROS} = Z/R = 250,000/3,600,000 = 0.0694 \text{ or } 6.94\%$$

Look at Chapter 13 in the text for more examples

The following questions are often missed on the second exam.

10. The NS Wagon Company earns \$500,000 in profits on sales of \$6,000,000. It has total assets of \$3,000,000 and net worth of \$1,750,000.

Calculate its net profit margin (i.e., return on sales or net profit percentage)

- a) 50%
- b) 8.3% *
- c) 16.67%
- d) 18.9%
- e) 29.2%

Answer

net profit ÷ sales = net profit margin (aka return on sales)

$$\$500,000 / \$6,000,000 = 8.3\%$$

11) A boy purchases a wagon for \$22.80 and sells it for \$38. What is his markup on his selling price?

- a) 166.67%
- b) 66.67%
- c) 60%
- d) 40% *
- e) 20%

Answer: $Mp = P - V / P$

Where Mp = markup on Price, V = variable cost. P = Price

$$Mp = (38 - 22.80) / 38 = 40\%$$

12) You have a plan to increase your advertising by \$300,000. Your current selling price is \$80 per unit and your variable cost of making each unit is \$50. Your current markup on selling price is 37.5%. How many units must you sell to breakeven on the additional \$300,000.

- a) 10,000 units *
- b) \$800,000 units
- c) 375,000 units
- d) 6,000 units

answer : Breakeven volume = fixed cost / (price - variable cost) = $300,000 / (80 - 50) = 10,000$ units

13) A firm makes shoes for a cost of \$20 pair and sells them for a price that earns them a 60% markup on price. What price does the firm sell the shoes for?

- a) \$33.33
- b) \$26
- c) \$50*
- d) \$32
- e) \$80

Answer: $P - V = MpP$

$$P - 20 = .6P$$

$$P - .6P = 20$$

$$0.4P = 20$$

$$P = 20 / 0.4 = 50$$

14) The Better Shoes company is selling 300,000 shoes at \$100 a pair. It estimates that the price elasticity (aka, customer price sensitivity) is -1.7 and is planning on lowering its price in the domestic to \$96. It has reason to believe the price change will increase its sales volume to 320,400 shoes.

a) True *

b) False

Answer is

Elasticity predicts a 1% change in price changes volume by 1.7%

Percentage increase in quantity = $4 \times 1.7 = 6.8\%$

Quantity increases to = $1.068 (300,000) = 320,400$ pairs of shoes

15) The Gulf Wagon manufacturing company traditionally charges a selling price of $P = \$22$ per wagon. It has the following costs:

A variable cost = $V = \$12$ per wagon

A fixed or period cost = $F = \$400,000$

What quantity of wagons must it sell to cover its total costs (aka the breakeven quantity (BEQ))?

a) 18,181 wagons

b) 19,048 wagons

c) 33,334 wagons

d) 40,000 wagons*

e) 133,334 wagons

Answer

$BEQ = F / (P - V)$

$BEQ = \$400,000 / (\$22 - \$12) = \$400,000 / \$10 = 40,000$

15) The Gulf Wagon manufacturing company desires a 25% return on sales (also known as the net profit margin) and anticipates a sales volume of $Q = 50,000$ wagons. It has the following costs:

The variable cost = $V = \$12$ per wagon

The fixed or period cost = $F = \$400,000$

What selling price must it charge to cover its total costs and produce the desired return on sales (ROS)?

a) \$14.40 per wagon

b) \$26.67 per wagon*

c) \$20 per wagon

d) \$25 per wagon

e) \$16 per wagon

Answer

Average cost per wagon (aka breakeven price) = $V + F/Q$

Average cost per wagon (aka breakeven price) = $12 + 400,000/50,000$

Average cost per wagon (aka breakeven price) = $12 + 8 = \$20$

Selling Price = average cost \div (1-RoS)

Selling Price = $\$20 / (1 - 0.25) = \26.67

16) The Faster Shoe Company earns \$500,000 in profits on sales of \$6,000,000. It has total assets of \$3,000,000 and the shareholders' net worth of \$1,750,000. Calculate its return on investment (ROI).

- a) 50%
- b) 8.33%
- c) 16.67% *
- d) 18.9%
- e) 29.2%

Answer

net profit ÷ assets = return on investment (ROI)

$$\$500,000 / \$3,000,000 = 16.67\%$$