Extra Practice Problems – Unit 7 Cost Volume Profit Analysis and Break Even

Q1. A small manufacturing operation can produce up to 250 units per week of a product that it sells for $20 per unit. The variable costs per unit is $12 and the fixed costs per week are $1200.

a. How many units must the firm sell per week to break even? (150 units)
b. Determine the firm's weekly profit or loss if it sells:
    a. 120 units per week ($240 loss)
    b. 250 units per week ($800 profit)
c. At what level of sales will the net income be $400 per week? (200 units)

Q2. Armena Manufacturing Corp. manufacturers composters. It estimates that material costs are $43 per composter. Armena sells its composters for $70 each and it can produce a maximum of 3200 composters per month. Lease and overhead expenses are $648,000.

a. What is the break-even volume per month? (2000 composters per month)
b. What is the monthly net income at a volume of 2500 composters per month? ($13,500/month)
c. What is the monthly net income if Armena operates at 50% of capacity during a pandemic? ($10,800/month loss)

Q3. Pendryl Office Supplies is evaluating the profitability of leasing a photocopier for its customers to use on a self serve basis at 10 cents/copy. The copier may be leased for $300 per month plus 1.5 cents per copy on a full service contract. Pendryl can purchase paper at $5 per 500 sheet ream. Toner costs $100 per bottle, which in normal use will last for 5000 pages. Pendryl thinks that there are additional other costs of 0.5 cents per copy.

a. How many copies per month must be sold in order to break even? (6000 copies/month)
b. What will be the increase in monthly profit for each 1000 copies sold above the break-even point? ($50 per month)

Q4. The Pipestone ski club is planning a weekend package for its members. The members will each be charged $270. For a group of 15 or more, the club can purchase a two-day downhill pass and two nights' accommodations for $220 per person. A 36-passenger capacity bus can be chartered for $1400.

a. How many must sign up to break-even? (28)
b. If the bus is filled, how much profit will the club make? ($400)
c. If the local Lion's Club agrees to cover any loss up to $400, what is the minimum number of participants required? (20)

Q5. Norbuck Publishing Inc. is conducting a financial feasibility analysis for a new book on the history of Buck Lake. Editing and preproduction costs are estimated at $45,000. The printing costs are $7000 for setup plus $8/book. The author's royalty is 8% of the publisher's selling price to bookstores. Advertising and promotion costs are estimated to be $8000.

a. If the price to bookstores is set at $35, how many books must be sold to break-even? (2480 books)
b. Brett in the marketing department is forecasting sales of 4800 at the $35 price. What will be the net income from this book at this volume of sales? ($56,160)
c. Brett is also forecasting that, if the price is reduced by 10%, unit sales will be 15% higher. Which price should be selected? (select the $35 price)
d. In a highest cost scenario, fixed costs might be $5000 higher and the printing costs might be $9/book. By how many books would the break-even volume be raised? (322 books)

ANSWERS IN BRACKETS NEXT TO THE QUESTION