Problem 6-22 (45 minutes)

1. Sales (15,000 units × $70 per unit)............................ $1,050,000
   Variable expenses (15,000 units × $40 per unit)........... 600,000
   Contribution margin 450,000
   Fixed expenses.. 540,000
   Net operating loss.. $ (90,000)

2. $$\text{Break-even point in unit sales} = \frac{\text{Fixed expenses}}{\text{Unit contribution margin}}$$

   $$= \frac{\$540,000}{\$30 \text{ per unit}} = 18,000 \text{ units}$$

   18,000 units × $70 per unit = $1,260,000 to break even.

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Problem 6-22 (continued)

3.

Unit Sales Price	Unit Variable Expense	Unit Contri-bution Mar-gin	Volume (Units)	Total Contri-bution Margin	Fixed Ex-penses	Net operat-ing income
$70	$40	$30	15,000	$450,000	$540,000	$ (90,000)
68	40	28	20,000	560,000	540,000	20,000
66	40	26	25,000	650,000	540,000	110,000
64	40	24	30,000	720,000	540,000	180,000
62	40	22	35,000	770,000	540,000	230,000
60	40	20	40,000	800,000	540,000	260,000
58	40	18	45,000	810,000	540,000	270,000
56	40	16	50,000	800,000	540,000	260,000

Thus, the maximum profit is $270,000. This level of profit can be earned by selling 45,000 units at a price of $58 each.

Problem 6-22 (continued)

4. At a selling price of $58 per unit, the contribution margin is $18 per unit. Therefore:

$$\text{Break-even point in unit sales} = \frac{\text{Fixed expenses}}{\text{Unit contribution margin}}$$

$$= \frac{\$540,000}{\$18 \text{ per unit}} = 30,000 \text{ units}$$

30,000 units × $58 per unit = $1,740,000 to break even.

This break-even point is different from the break-even point in part (2) because of the change in selling price. With the change in selling price the unit contribution margin drops from $30 to $18, resulting in an increase in the break-even point.

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