

Problem 6-25 (60 minutes)

1.

Carbex, Inc.
Income Statement For April

	<i>Standard</i>		<i>Deluxe</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
Sales	<u>\$240,000</u>	<u>100</u>	<u>\$150,000</u>	<u>100</u>	<u>\$390,000</u>	<u>100.0</u>
Variable expenses:						
Production	60,000	25	60,000	40	120,000	30.8
Sales commission	<u>36,000</u>	<u>15</u>	<u>22,500</u>	<u>15</u>	<u>58,500</u>	<u>15.0</u>
Total variable expenses..	<u>96,000</u>	<u>40</u>	<u>82,500</u>	<u>55</u>	<u>178,500</u>	<u>45.8</u>
Contribution margin	<u>\$144,000</u>	<u>60</u>	<u>\$ 67,500</u>	<u>45</u>	<u>\$211,500</u>	<u>54.2</u>
Fixed expenses:						
Advertising					105,000	
Depreciation					21,700	
Administrative					<u>63,000</u>	
Total fixed expenses.....					<u>189,700</u>	
Net operating income					<u>\$ 21,800</u>	

Carbex, Inc.
Income Statement For May

	<i>Standard</i>		<i>Deluxe</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
Sales.....	<u>\$60,000</u>	<u>100</u>	<u>\$375,000</u>	<u>100</u>	<u>\$435,000</u>	<u>100.0</u>
Variable expenses:						
Production	15,000	25	150,000	40	165,000	37.9
Sales commission	<u>9,000</u>	<u>15</u>	<u>56,250</u>	<u>15</u>	<u>65,250</u>	<u>15.0</u>
Total variable expenses....	<u>24,000</u>	<u>40</u>	<u>206,250</u>	<u>55</u>	<u>230,250</u>	<u>52.9</u>
Contribution margin	<u>\$36,000</u>	<u>60</u>	<u>\$168,750</u>	<u>45</u>	<u>204,750</u>	<u>47.1</u>
Fixed expenses:						
Advertising.....					105,000	
Depreciation					21,700	
Administrative					<u>63,000</u>	
Total fixed expenses.....					<u>189,700</u>	
Net operating income					<u>\$ 15,050</u>	

Problem 6-25 (continued)

2. The sales mix has shifted over the last year from Standard sets to Deluxe sets. This shift has caused a decrease in the company's overall CM ratio from 54.2% in April to 47.1% in May. For this reason, even though total sales (in dollars) are greater, net operating income is lower.
3. Sales commissions could be based on contribution margin rather than on sales price. A flat rate on total contribution margin, as the text suggests, might encourage the salespersons to emphasize the product with the greatest contribution to the profits of the firm.
4. a. The break-even in dollar sales can be computed as follows:

$$\text{Dollar sales to break even} = \frac{\text{Fixed expenses}}{\text{CM ratio}} = \frac{\$189,700}{0.542} = \$350,000$$

- b. The break-even point is higher with May's sales mix than with April's. This is because the company's overall CM ratio has gone down, i.e., the sales mix has shifted from the more profitable to the less profitable units.