

Exercise 6-5 (20 minutes)

1. The equation method yields the break-even point in unit sales, Q , as follows:

$$\text{Sales} = \text{Variable expenses} + \text{Fixed expenses} + \text{Profits}$$

$$\$15Q = \$12Q + \$4,200 + \$0$$

$$\$3Q = \$4,200$$

$$Q = \$4,200 \div \$3 \text{ per basket}$$

$$Q = 1,400 \text{ baskets}$$

2. The equation method can be used to compute the break-even point in sales dollars, X , as follows:

	<i>Per Unit</i>	<i>Percent of Sales</i>
Sales price	\$15	100%
Less variable expenses	<u>12</u>	<u>80%</u>
Contribution margin	<u>\$ 3</u>	<u>20%</u>

$$\text{Sales} = \text{Variable expenses} + \text{Fixed expenses} + \text{Profits}$$

$$X = 0.80X + \$4,200 + \$0$$

$$0.20X = \$4,200$$

$$X = \$4,200 \div 0.20$$

$$X = \$21,000$$

3. The contribution margin method gives an answer that is identical to the equation method for the break-even point in unit sales:

$$\begin{aligned} \text{Break-even point in units sold} &= \text{Fixed expenses} \div \text{Unit CM} \\ &= \$4,200 \div \$3 \text{ per basket} \\ &= 1,400 \text{ baskets} \end{aligned}$$

4. The contribution margin method also gives an answer that is identical to the equation method for the break-even point in dollar sales:

$$\begin{aligned} \text{Break-even point in sales dollars} &= \text{Fixed expenses} \div \text{CM ratio} \\ &= \$4,200 \div 0.20 \\ &= \$21,000 \end{aligned}$$