

Solution:

The calculation could be done as follows:

$$\text{Net Sales} = \text{Gross Profit} + \text{Cost of Goods Sold}$$

However, we have the following values:

$$\text{Net Sales} = \$200,000$$

$$\text{Gross Profit} = 0.45 \times \$200,000 = \$90,000$$

Thus, we get from the above equation,

$$\text{Cost of Goods Sold} = \$110,000$$

Let us now find the cost of acquisition of merchandise:

$$\text{Purchase cost} = \text{Gross Purchase} - \text{Returns \& Allowances} + \text{Freight Charges}$$

By using the values given, we get

$$\text{Purchase cost} = 170,000 - 10,000 + 15,000 = 175,000$$

Finally, we have the relation from periodic inventory management:

$$\text{Purchase cost} + \text{Initial Inventory} = \text{Final Inventory} + \text{Cost of Goods Sold}$$

Thus, we get the values:

$$175,000 + 70,000 = \text{Final inventory} + 110,000$$

$$\text{Final Inventory} = 135,000$$

Thus, the cost of goods destroyed by fire (given by final inventory) is \$135,000.