Problem 6-30 (30 minutes)

1. The contribution margin per sweatshirt would be:

Selling price		$13.50
Variable expenses:		
Purchase cost of the sweatshirts	$8.00	
Commission to the student salespersons	1.50	9.50
Contribution margin		$ 4.00

Since there are no fixed costs, the number of unit sales needed to yield the desired $1,200 in profits can be obtained by dividing the target $1,200 profit by the unit contribution margin:

$$\frac{\text{Target profit}}{\text{Unit contribution margin}} = \frac{\$1{,}200}{\$4.00} = 300 \text{ sweatshirts}$$

300 sweatshirts × $13.50 per sweatshirt = $4,050 in total sales

2. Since an order has been placed, there is now a "fixed" cost associated with the purchase price of the sweatshirts (i.e., the sweatshirts can't be returned). For example, an order of 75 sweatshirts requires a "fixed" cost (investment) of $600 (=75 sweatshirts × $8.00 per sweatshirt). The variable cost drops to only $1.50 per sweatshirt, and the new contribution margin per sweatshirt becomes:

Selling price	$13.50
Variable expenses (commissions only)	1.50
Contribution margin	$12.00

Since the "fixed" cost of $600 must be recovered before Mr. Hooper shows any profit, the break-even computation would be:

$$\text{Unit sales to break even} = \frac{\text{Fixed expenses}}{\text{Unit contribution margin}}$$

$$= \frac{\$600}{\$12.00} = 50 \text{ sweatshirts}$$

50 sweatshirts × $13.50 per sweatshirt = $675 in total sales

If a quantity other than 75 sweatshirts were ordered, the answer would change accordingly.