Problem A-8 (45 minutes)

1. Projected sales (100 machines × $4,950 per machine).. $495,000
   Less desired profit (15% × $600,000) 90,000
   Target cost for 100 machines $405,000

   Target cost per machine ($405,000 ÷ 100 machines).... $4,050
   Less National Restaurant Supply's variable selling cost per machine 650
   Maximum allowable purchase price per machine..... $3,400

2. The relation between the purchase price of the machine and ROI can be developed as follows:

$$\text{ROI} = \frac{\text{Total projected sales - Total cost}}{\text{Investment}}$$

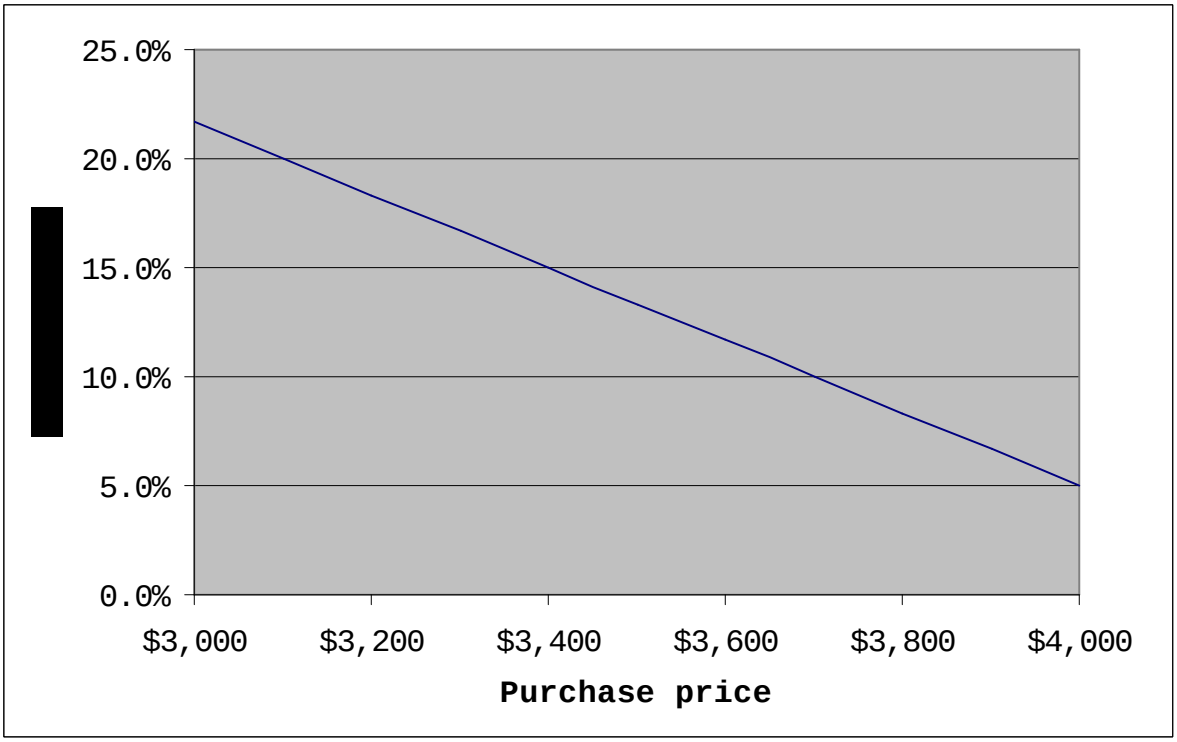
$$= \frac{\$495{,}000 - (\$650 + \text{Purchase price of machines}) \times 100}{\$600{,}000}$$

   The above formula can be used to compute the ROI for purchase prices between $3,000 and $4,000 (in increments of $100) as follows:

Purchase price	*ROI*
$3,000	21.7%
$3,100	20.0%
$3,200	18.3%
$3,300	16.7%
$3,400	15.0%
$3,500	13.3%
$3,600	11.7%
$3,700	10.0%
$3,800	8.3%
$3,900	6.7%
$4,000	5.0%

Problem A-8 (continued)

Using the above data, the relation between purchase price and ROI can be plotted as follows:



Problem A-8 (continued)

3. A number of options are available in addition to simply giving up on adding the new sorbet machines to the company's product lines. These options include:
   - Check the projected unit sales figures. Perhaps more units could be sold at the $4,950 price. However, management should be careful not to indulge in wishful thinking just to make the numbers come out right.
   - Modify the selling price. This does not necessarily mean increasing the projected selling price. Decreasing the selling price may generate enough additional unit sales to make carrying the sorbet machines more profitable.
   - Improve the selling process to decrease the variable selling costs.
   - Rethink the investment that would be required to carry this new product. Can the size of the inventory be reduced? Are the new warehouse fixtures really necessary?
   - Does the company really need a 15% ROI? Does it cost the company this much to acquire more funds?