1. Minimizing cost. A closed-top cylindrical container is to have a volume of $250 \mathrm{in}^{2}$. Assume the costs of the materials for making the cylindrical container described are $\$ 0.005$ for the circular base and top and $\$ 0.003$ for the wall. What dimensions will minimize the cost of materials?
2. Determining ticket price. Promoters of international fund-raising concerts must walk a fine line between profit and loss, especially when determining the price to charge for admission to closed-circuit TV showings in local theaters. By keeping records, a theater determines that at an admission price of $\$ 26$, it averages 1000 people in attendance. For every drop in price of $\$ 1$, it gains 50 customers. Each customer spends an average of $\$ 4$ on concessions. What admission price should the theater charge in order to maximize total revenue? (There are two aspects to the revenue. Don't overthink this one!)
