Answers to End-of-Chapter Exercises

1. a. The marginal cost schedule would be:

<table>
<thead>
<tr>
<th>Quantity of Gizmos</th>
<th>Marginal Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$75</td>
</tr>
<tr>
<td>2</td>
<td>$100</td>
</tr>
<tr>
<td>3</td>
<td>$175</td>
</tr>
<tr>
<td>4</td>
<td>$250</td>
</tr>
</tbody>
</table>

The marginal cost curve would be:

b. If the price of gizmos were $175, the firm should produce three gizmos (the point where marginal cost equals marginal revenue). Selling three gizmos, the firm has total revenues of $525 ($175 \times 3). Total costs are $425, so the firm’s profits are $100.

c. If the price dropped to $125, the firm would now only produce two gizmos (price is at least equal to marginal cost up to this quantity). The firm’s new total revenues are $250 ($125 \times 2). Total cost is also $250, so the firm is making zero economic profits (a normal profit).

d. When the price is $125, no new firms will want to enter the market because no economic profits can be made. As long as no opportunities for economic profits in other industries exist, no firms will leave the market for gizmos either at a price of $125.

2. The correct matches are a→iv, b→iii, c→v, d→ii, e→i, f→vi, g→vii.

3. The factor that the economist takes into account, that the mayor neglects, is the deadweight loss of the tax. As illustrated in Figure 11.7, a tax will create a
deadweight loss for society in terms of lost consumer and producer surplus. Residents are eating out less often (restaurant dining has declined by 15%) and no longer receiving those benefits, while restaurants are making less money. There are losses in welfare as measured by consumer and producer surplus, compared to the competitive equilibrium, due to the change in behavior (eating out less). There may be secondary costs and benefits to consider as well. For example, by eating out less often people may be eating healthier at home (a positive externality), spending less time with friends (a negative externality), creating less pollution by driving to restaurants, etc. (A full economic accounting of government action in general would also take into account the benefits gained from the government programs financed by the tax).

4. Benefits should be measured according to the consumer surplus that users of the bridge receive. Given the information in the question, we can calculate the consumer surplus as:

\[
\begin{align*}
10 \times \$5,000 &= \$50,000 \\
30 \times \$1,000 &= \$30,000 \\
60 \times \$100 &= \$6,000 \\
\hline
\$86,000
\end{align*}
\]

The total consumer surplus from the bridge is $86,000. (Note for discussion: This does not fit exactly into the graphical analysis shown in the text, if you think of the “quantity of bridge” enjoyed by all commuters as being equal to one. However, if you think of the differences in willingness to pay as being related to the number of trips each driver expects to make, you could get a graph like Figure 11.4, with a price of $0. Either way, the question uses the concept of consumer surplus: how much are people willing to pay, above what they actually pay? In discussing this question, you might combine this question with the previous one: the economic cost of raising taxes (>50K) may be higher than the naïve answer based on accounting revenues (=50K), but at the same time the economic benefits of public project ($86K) can also much exceed the accounting ($50K)—and even possibly its economic (>50K)—costs of doing the project.)

5. The tax on windows effectively raises the price of windows. So this creates an income and substitution effect, both of which will cause people to install fewer windows. This will take some time as people build new houses and remodel existing houses. Eventually, people will avoid the tax by installing fewer windows and having darker houses. A graph would look like Figure 11.7 or 11.8, with people responding to the tax on a good by demanding less of it.