1. Many states are considering price ceilings on auto insurance. In the state of Jefferson, which once was part of California, the supply and demand curves for automobile insurance are given in the table below:

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity</th>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>$800</td>
<td>1,000</td>
<td>$800</td>
<td>1,800</td>
</tr>
<tr>
<td>$750</td>
<td>1,100</td>
<td>750</td>
<td>1,500</td>
</tr>
<tr>
<td>$700</td>
<td>1,200</td>
<td>700</td>
<td>1,200</td>
</tr>
<tr>
<td>$650</td>
<td>1,400</td>
<td>650</td>
<td>900</td>
</tr>
<tr>
<td>$600</td>
<td>1,600</td>
<td>600</td>
<td>600</td>
</tr>
</tbody>
</table>

a. Find the equilibrium price and quantity and illustrate it on a correctly labeled supply and demand diagram on the axes below:

b. Suppose that a price ceiling of $650 is imposed. What are the results? Use the above diagram to illustrate, showing the price ceiling, the quantity of insurance policies that will actually be purchased, changes in consumer and producer surplus and any deadweight loss.

At a price of $650, only 900 policies will be sold even though 1,400 are demanded. There is shortage of 500 policies. Deadweight loss is illustrated above. There also will be a transfer of producer surplus to consumers, also illustrated above.
2.  The demand curve and supply curve for two-bedroom apartments in River Park are given below:

<table>
<thead>
<tr>
<th>Demand</th>
<th>Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Price w/tax</td>
</tr>
<tr>
<td>$800</td>
<td>$700</td>
</tr>
<tr>
<td>$750</td>
<td>$650</td>
</tr>
<tr>
<td>$700</td>
<td>$600</td>
</tr>
<tr>
<td>$650</td>
<td>$550</td>
</tr>
<tr>
<td>$600</td>
<td>$500</td>
</tr>
</tbody>
</table>

a. Find the equilibrium price and quantity. Illustrate this on the diagram below.

b. Suppose that landlords are required to pay $100 per apartment in a landlord’s tax to the city government. Show this in the table above and illustrate it in a diagram below. What is the incidence of the tax, i.e. who pays and how much? Illustrate the incidence of the tax below also.

The equilibrium price is $700 and the equilibrium quantity is 300.

Here the equilibrium price is $750 and the quantity is 200. The landlord and renter each pay half of the tax.
c. Now suppose that rather than being paid by the ‘sellers’ of apartments (landlords) the tax is paid by the ‘buyers’ (renters). Show this in the table above and illustrate it in a diagram below. What is the incidence of the tax, i.e. who pays and how much? Illustrate the tax incidence on your diagram.

<table>
<thead>
<tr>
<th>P</th>
<th>$700</th>
<th>$750</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>D</td>
<td>S</td>
</tr>
</tbody>
</table>

Here again the equilibrium price is $750 and the quantity is 200. The landlord and renter each pay half of the tax.

<table>
<thead>
<tr>
<th>D</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
</table>

Renter’s Share

Landlord’s Share

Q/t

3. Suppose the demand curve for wheat is \( Q_D = 100 - 10p \) and the supply curve is \( Q_S = 10p \). The government imposes a price ceiling of \( p = $3 \).

a. Describe what happens in this market. How does the equilibrium change?

Solve for market equilibrium price: \( 100 - 10p = 10p \rightarrow p = 5 \) and \( Q = 50 \). At \( p = 3 \), \( Q^S = 30 \) \( \text{and } Q^D = 70 \) resulting in a shortage of 40.

b. What effect does this price ceiling have on consumer surplus, producer surplus and deadweight loss? Provide specific numeric answers.

\[ \text{DWL is } 20 \times 2 \times \frac{1}{2} = 20. \] \[ \text{So } 2 \times 30 = 60 \text{ of producer surplus is transferred to consumers as consumer surplus.} \] (If you don’t see where these numbers are coming from, draw a picture and work through it.)

4. Why are the long-run consequences of a price control different from the short-run consequences of a price control? Be specific, and consider both price floors and price ceilings in your answer.

The long-run consequence of a price floor is that a much larger surplus results than will occur in the short run. This is because both the demand curve and supply curve become more elastic over the long run. The larger surplus creates added pressure for the emergence of a black market. The long-run consequence of a price ceiling is that the shortage is larger than it would be in the short run. This is because both the demand curve and supply curve become more elastic over the long run. The larger shortage creates added pressure for the emergence of a black market.
5. In a 1973 paper entitled “A Living Wage,” published in *Annals of the American Academy of Political and Social Science* (vol. 409: 33–41), Daniel R. Fusfeld from the Department of Economics at the University of Michigan makes the following statement:

The only effective way to eliminate poverty in the United States is to pay all workers a living wage. As long as working people labor in jobs in which earnings are inadequate to meet even the poverty standards of income, their families will remain poor; furthermore, their poverty will be reproduced from one generation to the next. Our society will continue to suffer from all of the ills associated with poverty: disease, degradation, crime, hostility and anger (p. 35).

This essay is a normative assessment of the living (or minimum) wage. In your short-answer essay, include the following elements:

a. What is the purpose of a living wage?

*The purpose of a living wage is to reduce poverty and allow workers to maintain a decent standard of living. This standard of living is determined by the cultural and economic context in which workers live.*

*A minimum wage is a real-world example of a price floor.*

*Price floors are enacted because a government feels that the equilibrium price received by a seller is too low. This is then a legal minimum selling price above the equilibrium price.*

b. Compare and contrast the effects of a living-wage policy set in a labor market where the demand for workers is relatively price inelastic and one where it is relatively price elastic. Graph and explain your results.

*Graph A: Living Wage with Inelastic Demand*
Graph B: Living Wage with Elastic Demand

Graph B has much higher unemployment than Graph A. Employers are more responsive to a change in the wage in Graph B than those whose demand is represented in Graph A. This may be due to a variety of reasons, such as the ease with which firms can find substitutes for workers in the production process.

6. A California state legislator has proposed an additional increase in the sales-tax rate to fund higher education. One critic responded that this would hurt both producers and consumers.
   a. Discuss the sense in which this statement is or is not true.

   *Prices to consumers will increase while net proceeds to producers will decrease, so both parties will be hurt by having to bear a portion of the tax. How much each party pays will be determined by the relative price elasticity of supply and demand.*

   b. Suppose the price elasticity of demand is 2.1 for automobiles and 0.6 for clothing. How would you expect the impact of the tax to differ between the two markets? Would you expect the impact to be different in the long run than in the short run? Why?

   *Consumers of clothing will pay a greater percentage of the tax than consumers of autos. In general, we would expect demand to be more elastic in the long run which would tend to shift more of the tax to the producers. This is of course, assuming that price elasticity of supply isn’t also changing.*
7. Determine what percentage of a tax would be borne by consumers in each of the following situations:

a. Price elasticity of demand is 0.5, and price elasticity of supply is 1.0.

\[
\frac{1.0}{0.5 + 1.0} = 67\%
\]

b. Price elasticity of demand is 0.5, and price elasticity of supply is 0.5.

\[
\frac{1.0}{0.5 + 0.5} = 50\%
\]

c. Price elasticity of demand is 1.5, and price elasticity of supply is 0.5.

\[
\frac{0.5}{1.5 + 0.5} = 25\%
\]

8. Use either the word elastic or inelastic to complete the following sentences:

a. Deadweight loss with taxes is greater when demand is ___elastic__.

b. The amount of surplus transferred from producers to consumers with a price ceiling is greater when supply is ___inelastic__.

c. Producers are willing to spend more to lobby government’s support for a price floor, or to restrict supply, when demand is _inelastic___.

d. Rent controls cause more damage in the long run because, compared to the short-run supply of rental housing, long-run supply is more ___elastic__.

e. Luxury taxes do not really hurt buyers of luxuries, because demand for luxuries is ___elastic__.