1) Using the graph below, solve for the opportunity cost of producing one unit of beef. Then, find the opportunity cost of producing one unit of pork.

2) Suppose that Shaw Industries can produce 400 rugs or 175 carpets in one hour. Draw a PPF for Shaw for a 40 hour work week. Find the opportunity costs.
3) Using the PPFs below, find the absolute advantage and comparative advantage for each country. Find all relevant opportunity costs. Then, determine what kind of trade would improve the situation of these countries.
Chapter 4 Practice

1) Illustrate a $3 tax in the market for piano lessons (using either method).

Free market (no tax):

Consumer Surplus:
Producer Surplus:
Tax Revenue:
Total Surplus:
DWL:

With Tax:

Consumer Surplus:
Producer Surplus:
Tax Revenue:
Total Surplus:
DWL:
2) Illustrate a $6 tax.

With Tax:

Consumer Surplus:

Producer Surplus:

Tax Revenue:

Total Surplus:

DWL:
7) Illustrate a binding price floor that causes a surplus of 500.

8) Explain the concept of a non-binding price floor. Generally speaking, what causes this?

9) Illustrate a binding price ceiling that causes a shortage of 100.

10) Explain the concept of a non-binding price ceiling. Generally speaking, what causes this?
Chapter 7 Worksheet

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th></th>
<th>2013</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Price</td>
<td>Quantity</td>
<td>Price</td>
<td>Quantity</td>
</tr>
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<td>$0.25</td>
<td>10,000</td>
<td>$0.40</td>
<td>12,000</td>
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<td>Corn</td>
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<td>40,000</td>
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<tr>
<td>Cars</td>
<td>$15,000</td>
<td>5</td>
<td>$16,000</td>
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</tr>
</tbody>
</table>

1) Calculate the nominal GDP for 2013.

2) Calculate the real GDP for 2013 using 2000 as a base year.

3) Calculate the real GDP for 2000 using 2000 as a base year.

\[ C = \$8,000 \\
I = \$3,000 \\
G = \$4000 \\
X = \$1,000 \\
M = \$2000 \]

4) Solve for GDP based on the information above.

5) Based on the information above, what is the per capita GDP if population equals 500?

6) Draw a business cycle, explain the peaks, contractions, recoveries, expansion, and peaks.

1) Price rises from $2.50 to $4. Price elasticity of demand:

A: Demand is elastic, inelastic, or unit elastic:

2) Price falls from $600 to $400. Price elasticity of demand:

A: Demand is elastic, inelastic, or unit elastic:
3) Draw a demand curve that is perfectly price inelastic:

4) In a grocery store in Dalton: The price of jelly increases from $2.00 to $3.00. The quantity demanded of peanut butter falls from 800 to 700. Calculate the cross-price elasticity of demand:

What do we call this relationship?

5) The price of chicken falls from $4 to $3.50 a pound. Simultaneously, quantity demanded for steak rises by 5%. Calculate the cross-price elasticity of demand:

What does we call this relationship?
6) Your income rises from $50,000 to $75,000. Quantity demanded for a good falls from 100 to 80. Calculate the income elasticity of demand:

What do well call this type of good?

7) Price falls from $250 to $150. Calculate the price elasticity of supply:

A: Supply is elastic, inelastic, or unit elastic?

8) Price rises from $1.00 to $1.25. Calculate the price elastic of supply:

A: Supply is elastic, inelastic, or unit elastic?
Chapter 23 Worksheet

1) Draw a market operating with perfect competition. Draw a corresponding graph representing an individual firm operating in the long-run.

2) Draw an individual firm operating at break-even. Label profits.

3) Draw an individual firm operating at a loss. Label profits.
4) A firm is operating at a price of $50 and an ATC of $44. If it sells 4,000 units, how much profit will it earn?

5) Illustrate the effect of an increase in demand in the short-run.

![Diagram](Image)

6) Illustrate the effect of an increase in demand in the long-run.

![Diagram](Image)

7) When should a firm stay open in the short-run, even when it is operating at a loss?

8) When should a firm stay open in the long-run, even when it is operating at a loss?
6) In the graph above, assume the price is $5. Find
   
   a. Quantity Supplied:
   
   b. Quantity Demanded:
   
   c. What do we call this situation?
   
   d. How could it be “fixed”:

7) In the graph above, assume the price is $2. Find
   
   a. Quantity Supplied:
   
   b. Quantity Demanded:
   
   c. What do we call this situation?
   
   d. How could it be “fixed”:

8) In the graph above, assume the price is $3. Find
   
   a. Quantity Supplied:
   
   b. Quantity Demanded:
   
   c. What do we call this situation?
### Chapter 22 Worksheet for Test 2

<table>
<thead>
<tr>
<th>Quantity of Workers</th>
<th>Quantity of cookie ovens</th>
<th>Quantity of cookies baked per week</th>
<th>Cost of cookie ovens</th>
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<td>465</td>
<td>$450</td>
<td>$720</td>
<td>$1170</td>
<td>-</td>
<td></td>
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</table>

1) Draw a Total Cost Curve for this Firm.

![Total Cost Curve](image)

2) Draw an average cost curve from this firm.

![Average Cost Curve](image)

3) What additional information would be needed to decide what quantity to produce?
4) Draw a generic marginal cost and average cost graph. Explain the relationship between MC and ATC.

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<th>Q</th>
<th>TC</th>
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<th>TR</th>
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</tr>
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<tbody>
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5) Fill-in the table above. What quantity should this firm produce to maximize economic profit?

6) Is this firm operating in the short run or long run?

7) Draw a LRATC curve for a typical industry/firm. Explain why it is shaped the way it is. How would this look different for a nature monopoly?

Terms: Economies of scale, Diseconomies of scale, specialization, natural monopoly, LRATC, MC, MR, Variable Cost, Fixed Cost, ATC,
1) Using the graph below, solve for the opportunity cost of producing one unit of beef. Then, find the opportunity cost of producing one unit of pork.

\[
\frac{200B}{300} = \frac{300P}{200}
\]

\[1B = 1.5P\]

The OC of one beef is 1.5 porks.

\[
\frac{300P}{300} = \frac{800B}{800}
\]

\[1P = \frac{8}{3}B\]

The OC of one pork is \(\frac{8}{3}\) beefs.

2) Suppose that Shaw Industries can produce 400 rugs or 175 carpets in one hour. Draw a PPF for Shaw for a 40 hour work week. Find the opportunity costs.

\[
\frac{16,000R}{16,000} = \frac{7,000C}{16,000}
\]

\[1R = 0.4375\]

The OC of one rug is 0.4375 carpets.

The OC of one carpet is 2.2857 rugs.
3) Using the PPFs below, find the absolute advantage and comparative advantage for each country. Find all relevant opportunity costs. Then, determine what kind of trade would improve the situation of these countries.

India has the absolute advantage in both goods.

Russia: The OC of one coffee is 1.45 teas
The OC of one tea is 0.69 coffees

India: The OC of one coffee is 1.21 teas
The OC of one tea is 0.83 coffee

Russia has the comparative advantage in tea production. India has the comparative advantage in coffee production.

These countries should specialize in the good for which they have a C.A., then trade for the other good.
Chapter 4 Practice

1) Illustrate a $3 tax in the market for piano lessons (using either method).

Free market (no tax):

Consumer Surplus: \( \frac{1}{2} \cdot 150 \cdot 3 = 225 \)

Producer Surplus: \( \frac{1}{2} \cdot 150 \cdot 6 = 450 \)

Tax Revenue: $0

Total Surplus: 675

DWL: 0

With Tax:

Consumer Surplus: \( \frac{1}{2} \cdot 100 \cdot 2 = 100 \)

Producer Surplus: \( \frac{1}{2} \cdot 100 \cdot 4 = 200 \)

Tax Revenue: 100 \cdot 3 = 300

Total Surplus: 100 + 200 + 300 = 600

DWL: \( \frac{1}{2} \cdot 50 \cdot 3 = 75 \)
2) Illustrate a $6 tax.

With Tax:

Consumer Surplus: \( \frac{1}{2} \cdot 50 \cdot 1 = 25 \)

Producer Surplus: \( \frac{1}{2} \cdot 50 \cdot 2 = 50 \)

Tax Revenue: \( 50 \cdot 6 = 300 \)

Total Surplus: \( 25 + 50 + 300 = 375 \)

DWL: \( \frac{1}{2} \cdot 100 \cdot 6 = 300 \)
7) Illustrate a binding price floor that causes a surplus of 500.

8) Explain the concept of a non-binding price floor. Generally speaking, what causes this?
A floor that does not affect the market. Caused by a floor that is below the equilibrium price.

9) Illustrate a binding price ceiling that causes a shortage of 100.

10) Explain the concept of a non-binding price ceiling. Generally speaking, what causes this?
Chapter 7 Worksheet

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
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</tr>
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<td>Quantity</td>
</tr>
<tr>
<td>Water</td>
<td>$0.25</td>
<td>10,000</td>
<td>$0.40</td>
<td>12,000</td>
</tr>
<tr>
<td>Corn</td>
<td>$0.50</td>
<td>20,000</td>
<td>$0.50</td>
<td>40,000</td>
</tr>
<tr>
<td>Cars</td>
<td>$15,000</td>
<td>5</td>
<td>$16,000</td>
<td>6</td>
</tr>
</tbody>
</table>

1) Calculate the nominal GDP for 2013.

\[
(0.40 \cdot 12,000) + (0.5 \cdot 40,000) + (16,000 \cdot 6) = \$120,000
\]

2) Calculate the real GDP for 2013 using 2000 as a base year.

\[
(0.25 \cdot 12,000) + (0.5 \cdot 110,000) + (15,000 \cdot 6) = \$117,000
\]

3) Calculate the real GDP for 2000 using 2000 as a base year.

\[
(0.25 \cdot 10,000) + (0.5 \cdot 20,000) + (5 \cdot 15,000) = \$87,500
\]

\[
Y = C + I + G + NX
\]

4) Solve for GDP based on the information above.

\[
Y = \$14,000
\]

5) Based on the information above, what is the per capita GDP if population equals 500?

\[
\text{per capita GDP} = \frac{14,000}{500} = \$28
\]

6) Draw a business cycle, explain the peaks, contractions, recoveries, expansion, and peaks.

\[
\text{See book.}
\]

Chapter 20 Worksheet

1) Price rises from $2.50 to $4. Price elasticity of demand: \(0.39\)
A: Demand is elastic, inelastic, or unit elastic:

2) Price falls from $600 to $400. Price elasticity of demand: \(1.43\)
A: Demand is elastic, inelastic, or unit elastic: 

\[
\frac{Q_2 - Q_1}{Q_1} \frac{P_1}{P_2 + P_1} = \frac{50 - 60}{\frac{52+40}{2}} = \frac{4 - 2.5}{\frac{91+2.5}{2}}
\]

\[
\frac{\text{Price}}{\text{Quantity}}
\]

\[
\text{Price: S4, S2.50, S600, S400}
\]

\[
\text{Quantity: 50, 60, 500, 900}
\]
3) Draw a demand curve that is perfectly price inelastic:

4) In a grocery store in Dalton: The price of jelly increases from $2.00 to $3.00. The quantity demanded of peanut butter falls from 800 to 700. Calculate the cross-price elasticity of demand:

\[ E = \frac{\frac{Q_0 - Q_1}{Q_0}}{\frac{P_1 - P_0}{P_0}} = \frac{\frac{700 - 800}{700}}{\frac{3 - 2}{2.5}} = -0.3 \]

What do we call this relationship?

These goods are complements since the answer is negative.

5) The price of chicken falls from $4 to $3.50 a pound. Simultaneously, quantity demanded for steak rises by 5%. Calculate the cross-price elasticity of demand:

\[ E = \frac{\frac{0.05 \times Q_0}{0.05 \times P}}{\frac{3.5 - 4}{(3.5 + 4)}} = \frac{0.05}{-0.13} = -0.375 \]

What does we call this relationship?

Complements.
6) Your income rises from $50,000 to $75,000. Quantity demanded for a good falls from 100 to 80. Calculate the income elasticity of demand:

\[
\frac{\Delta Q}{Q_1} = \frac{80 - 100}{90} = \frac{75,000 - 50,000}{62,500}
\]

What do well call this type of good? **Inferior good.**

7) Price falls from $250 to $150. Calculate the price elasticity of supply: \(0.4\)

A: Supply is elastic, inelastic, or unit elastic?

8) Price rises from $1.00 to $1.25. Calculate the price elastic of supply: \(1.91\)

A: Supply is elastic, inelastic, or unit elastic?
Chapter 23 Worksheet

1) Draw a market operating with perfect competition. Draw a corresponding graph representing an individual firm operating in the long-run.

2) Draw an individual firm operating at break-even. Label profits.

3) Draw an individual firm operating at a loss. Label profits.
4) A firm is operating at a price of $50 and an ATC of $44. If it sells 4,000 units, how much profit will it earn?

\[ \pi = (P - ATC)Q \]
\[ (50 - 44) \times 4,000 \]
\[ \$24,000 \]

5) Illustrate the effect of an increase in demand in the short-run.

6) Illustrate the effect of an increase in demand in the long-run.

7) When should a firm stay open in the short-run, even when it is operating at a loss?

If \( \text{losses} \leq \text{fixed costs} \)

8) When should a firm stay open in the long-run, even when it is operating at a loss?

Never
6) In the graph above, assume the price is $5. Find
   
   a. Quantity Supplied: 145
   
   b. Quantity Demanded: 50
   
   c. What do we call this situation? **Surplus**
   
   d. How could it be “fixed”: **Lower the price**.

7) In the graph above, assume the price is $2. Find

   a. Quantity Supplied: 120
   
   b. Quantity Demanded: 80
   
   c. What do we call this situation? **Shortage**
   
   d. How could it be “fixed”: **Raise the price**.

8) In the graph above, assume the price is $3. Find

   a. Quantity Supplied: 100
   
   b. Quantity Demanded: 100
   
   c. What do we call this situation? **Equilibrium**.
### Chapter 22 Worksheet for Test 2

<table>
<thead>
<tr>
<th>Quantity of Workers</th>
<th>Quantity of cookie ovens</th>
<th>Quantity of cookies baked per week</th>
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</tr>
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<tbody>
<tr>
<td>0</td>
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<td>$1170</td>
<td>$1.52</td>
<td>$1.20</td>
</tr>
</tbody>
</table>

1) Draw a Total Cost Curve for this Firm.

![Graph of Total Cost Curve](image)

2) Draw an average cost curve from this firm.

![Graph of Average Cost Curve](image)

3) What additional information would be needed to decide what quantity to produce?

Need to know price or aspects of demand.
4) Draw a generic marginal cost and average cost graph. Explain the relationship between MC and ATC.

\[ \text{ATC is minimized when it intersects the MC curve.} \]

<table>
<thead>
<tr>
<th>Q</th>
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<td>0</td>
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</tr>
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5) Fill-in the table above. What quantity should this firm produce to maximize economic profit?

6) Is this firm operating in the short run or long run?

Short-run. Since its total costs are not = 0 when it produces 0.

7) Draw a LRATC curve for a typical industry/firm. Explain why it is shaped the way it is. How would this look different for a nature monopoly?

Terms: Economies of scale, Diseconomies of scale, specialization, natural monopoly, LRATC, MC, MR, Variable Cost, Fixed Cost, ATC,