1. The difference between a consumer's maximum willingness to pay for something and price paid is known as consumer surplus.

2. The area above the supply curve but below price is known as producer surplus.

3. Consumer surplus for a particular unit sold is equal to
   a. the vertical distance between price and the demand curve.
   b. the vertical distance between the demand curve and the supply curve.
   c. the vertical distance between price and the supply curve.
   d. the vertical distance between the demand curve and the x-axis.
   e. the vertical distance between the supply curve and the x-axis

4. Market producer surplus is equal to what area?
   a. The area below the demand curve but above price
   b. The area between the demand and supply curves
   c. The area below the demand curve but above the x-axis
   d. The area above the supply curve but below price
   e. The area below the supply curve but above the x-axis

5. Determine the amount of producer surplus generated in each of the following situations.

   a. Gordon lists his old Lionel electric trains on eBay. He sets a minimum acceptable price of $75. After five days of bidding, the final high bid is exactly $75. He accepts the bid.

   Ans a. Producer Surplus= amount received - cost (or willingness to sell)= $75-$75=$0
   Gordon will receive no producer surplus since the price received for the trains is equal to his cost.

   b. So-Hee advertises her car for sale in the used-car section of the student newspaper and she is willing to sell the car for any price higher than $1,500. The best offer she gets is $1,200, which she declines.

   Ans b. Producer Surplus= amount received - cost (or willingness to sell)= $1200-$1500= -$300
   No trade takes place because So-Hee's cost is $1,500, which is higher than the price of $1,200 she is offered. So no producer surplus is created.

   c. (i) Sanjay likes his job so much that he would be willing to do it for free. However, his annual salary is $80,000. He told his friend that his since economic cost is 0 therefore, his producer surplus is:
   Ans c. Producer Surplus= amount received - cost (or willingness to sell)= $80,000-$0= $80,000

Sanjay's cost is zero. The price he is paid for his time is $80,000, so his producer surplus is $80,000.

(ii) However, his friend informed him that he is making a mistake in his calculation. She said that he did not take into account the opportunity cost. If he had worked those hours somewhere else he might have earned $20,000 annually. Therefore, his producer surplus would be:
Producer Surplus= amount received - cost (or willingness to sell)= $80,000-$20,000= $60,000

6. There are six potential consumers of computer games, each willing to buy only one game. Consumer I is willing to pay $40 for a computer game, consumer 2 is willing to pay $35, consumer 3 is willing to pay $30, consumer 4 is willing to pay $25, consumer 5 is willing to pay $20, and consumer 6 is willing to pay $15.

   a. Suppose the market price is $29. What is the total consumer surplus?

   Ans a. Consumer surplus= willing to pay - amount paid
   Consumers 4,5, and 6's willingness to pay is lower than the price. So, they won't buy a game.
   Consumer 1 buys a game since her **willingness to pay is greater than the price**.
   She gains $40 − $29 = $11.
   Consumer 2 buys a game since his willingness to pay is **greater** than the price.
   He gains $35 − $29 = $6.
   Consumer 3 buys a game since her willingness to pay is **greater** than the price.
   She gains $30 − $29 = $1.

   The total consumer surplus is **$11 + $6 + $1** = $18.

   b. The **market price decreases** to $19. What is the total consumer surplus now? (CS should increase)

   Ans b. Consumer surplus= willing to pay - amount paid.
   Now, **all the consumer's willingness to pay is greater than the price except for consumer 6**. So, each will buy a game except for consumer 6.
   Consumer 1 buys a game since her willingness to pay is greater than the price.
   She gains $40 − $19 = $21.
   Consumer 2 buys a game since his willingness to pay is greater than the price.
   He gains $35 − $19 = $16.
   Consumer 3 buys a game since her willingness to pay is greater than the price.
   She gains $30 − $19 = $11.
   Consumer 4 buys a game since his willingness to pay is greater than the price.
   He gains $25 − $19 = $6.
   Consumer 5 buys a game since her willingness to pay is greater than the price.
   She gains $20 − $19 = $1.

The total consumer surplus is $21 + $16 + $11 + $6 + $1 = $55.

7. Demand: P = 80 - 2Q
   QD=(80-P)/2
   Supply: P = 40 + 2Q
   QS= (P-40)/2

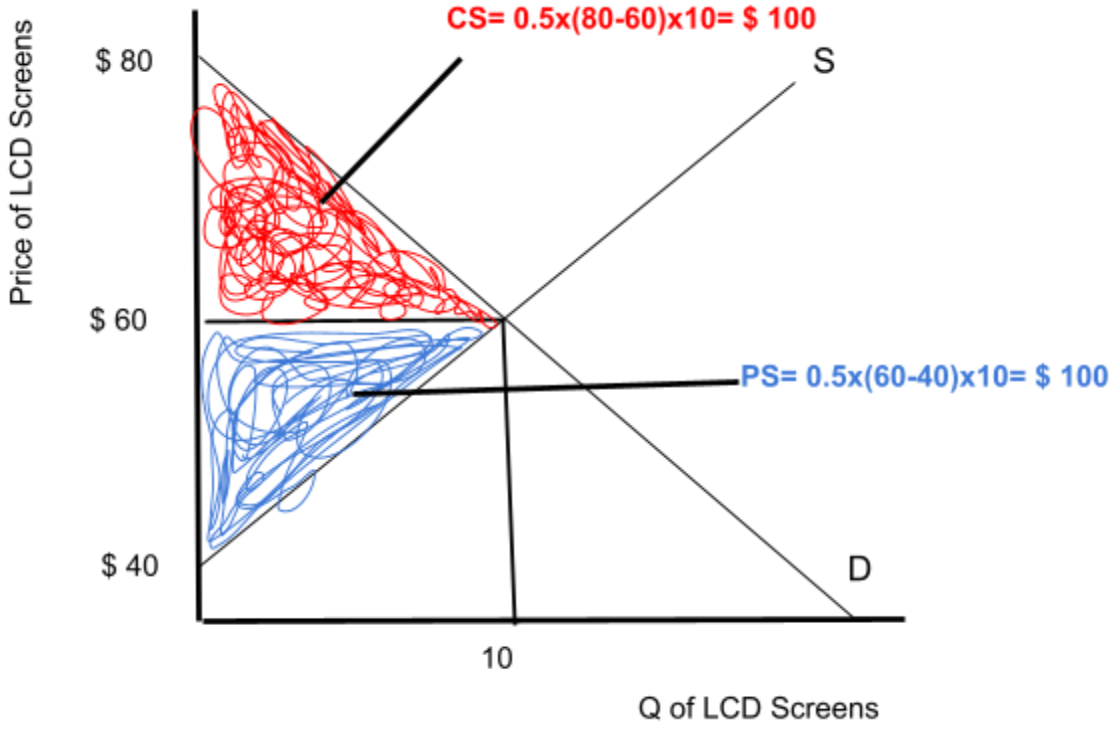
   where Q is the quantity of LCD screens and P is the dollar price per unit of LCD screen:

   a. Given the above information, find the market equilibrium price and quantity. Find the willingness to pay, economic cost/willingness to sell. Then calculate Consumer Surplus (CS), Producer Surplus (PS) and Total Surplus (TS).

   Ans a. In equilibrium, we know that the quantity supplied equals the quantity demanded. Set the demand equation equal to the supply equation:
   80 - 2Q=40 + 2Q
   4Q=40
   Q*= 10 LCD Screens
   By plugging this result back into either of two equations, we find the equilibrium price
   P*= 40 + 2Q= 40 + 2(10)= 60

   Consumer's willingness to pay:
   P= 80 - 2(0)[Quantity = 0]
   P= $ 80

   Seller's cost/willingness to sell:
   P= 40 +2(0) [Quantity = 0]
   P= $ 40



Consumer surplus is the area of the triangle above the price consumers pay, and below the demand curve.
CS= 0.5x(80-60)x10= $ 100
Producer surplus is the area of the triangle below the price producers receive and above the supply curve.
PS= 0.5x(60-40)x10= $ 100

Total Surplus= CS+PS=100+100= $ 200

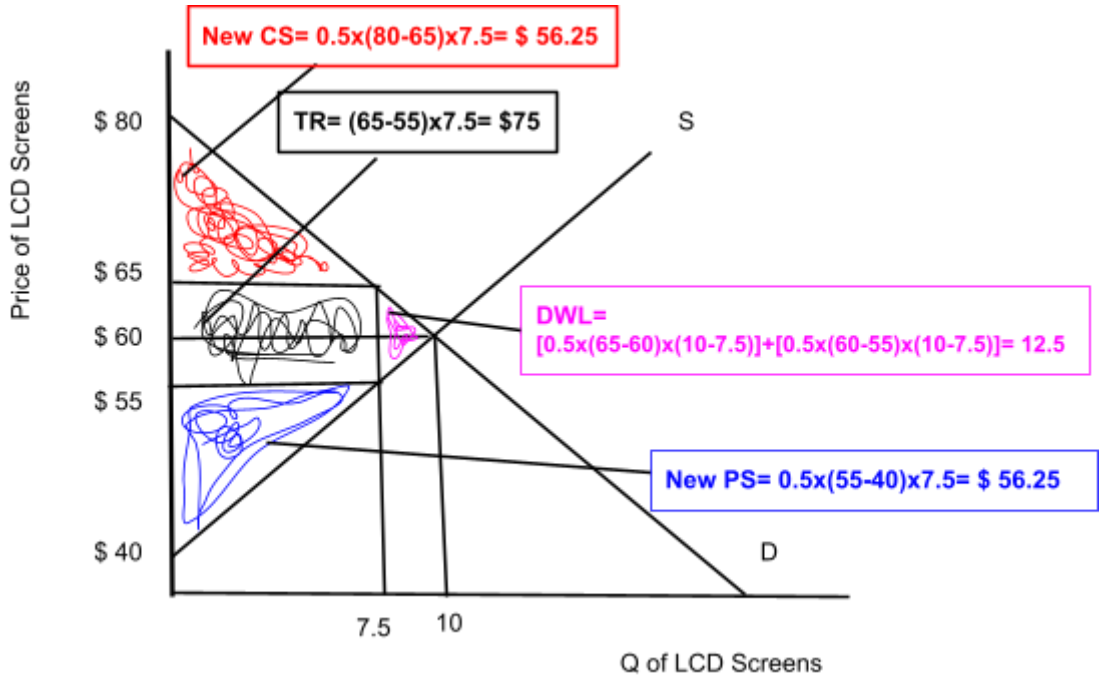
b. Suppose the government considers the LCD screen market as a potential government income source and decides to impose a tax of $10 per screen.

Given this tax, find the new price that consumers will pay for a LCD screen in this market, the new price producers will receive for a LCD screen in this market, and the new equilibrium quantity of LCD screens that will be sold. Calculate the new CS, PS, TR, and DWL.

Ans b. A tax of $10 per screen will be equally distributed among the buyers and sellers i.e., 10/2= $ 5. The new price per screen paid by buyers will be (60+5=65) $ 65 and the new price per screen received by sellers will be (60-5=55) $ 55.

QD= (80-P)/2= (80-65)/2= 7.5
QS= (P-40)/2= (55-40)/2= 7.5
So, Q*= 7.5

New CS= 0.5x(80-65)x7.5= $ 56.25
New PS= 0.5x(55-40)x7.5= $ 56.25
New TS= New CS + New PS= $ 56.25+ $ 56.25= $112.5
Tax revenue (TR)= (65-55)x7.5= $75 [Rectangle}
Deadweight loss (DWL)= [0.5x(65-60)x(10-7.5)]+[0.5x(60-55)x(10-7.5)]= 12.5 [2 triangle]
***** Area of the triangle of dwl: 0.5* tax amount *change in quantity**



Note: All these problems have been taken from external sources.