**Demand and Supply Curves**.

The following relations describe demand and supply conditions in the oil industry, where Q is quantity measured in millions of barrels and P is price in dollars:

|  |  |  |  |
| --- | --- | --- | --- |
|  | QD | = 525,000 - 7,500P | (Demand) |
|  |  |  |  |
|  | QS | = - 150,000 + 15,000P | (Supply) |

Complete the following table (COPY AND PASTE THE TABLE TO YOUR WORD DOCUMENT)

|  |  |  |  |
| --- | --- | --- | --- |
| **Price (1)** | **Quantity Supplied (2)** | **Quantity Demanded (3)** | **Surplus (+) or Shortage (** - **) (4) = (2)** - **(3)** |
| $35 |  |  |  |
| 30 |  |  |  |
| 25 |  |  |  |
| 20 |  |  |  |
| 15 |  |  |  |

2. **Demand Analysis.** The demand for high-definition television sets (HDTV) is often described as highly cyclical, and very sensitive to HDTV prices and interest rates. Given these characteristics, describe the effect of each of the following in terms of whether it would increase or decrease the quantity demanded or the demand of HDTVs. Moreover, when price is expressed as a function of quantity, indicate whether the effect of each of the following is an upward or downward movement along a given demand curve or instead involves an outward or inward shift in the relevant demand curve for HDTVs. Explain your answers.

A. A decrease in HDTV prices  
B. A fall in interest rates  
C. A rise in interest rates  
D. A severe economic recession  
E. A robust economic expansion

3. **Comparative Statics.**

Demand and supply conditions in the steel market are important concerns to business and government decision makers. Some of the following factors have the potential to influence the demand or quantity demanded of raw steel. Influences on the supply or quantity supplied may also result. Holding all else equal, describe these influences as increasing or decreasing, and indicate the direction of the resulting movement along or shift in the relevant curve(s).

A. Increases in the U. S. Department of Transportation's mileage requirements for car fleets.  
B. Public outcry at the poor condition of the nation's interstate freeway system.  
C. New alloys that increase steel's tensile strength are created.  
D. A severe recession.  
E. A new technology reduces the production cost of raw steel by one-third.

4. **Quantity Demanded.**

Gurgling Springs, Inc. is a bottler of natural spring water distributed throughout the New England states. Five-gallon containers of GSI spring water are regionally promoted and distributed through grocery chains. Operating experience during the past year suggests the following demand function for its spring water:

 Q = 250 - 100P + 0.0001Pop + 0.003I + 0.003A

where Q is quantity in thousands of five-gallon containers, P is price ($), Pop is population, I is disposable income per capita ($), and A is advertising expenditures ($).

A. Determine the demand curve faced by CPI in a typical market where P = $4, Pop = 4,000,000 persons, I = $50,000 and A = $400,000. Show the demand curve with quantity expressed as a function of price, and price expressed as a function of quantity.  
B. Calculate the quantity demanded at prices of $5, $4, and $3.  
C. Calculate the prices necessary to sell 1,250, 1,500, and 1,750 thousands of five-gallon containers.