

Chapter 2 Solutions

Section 2.1

Question 1 1) a. Not a solution, b. Solution

2) (-1, -1)

3) (2, -1)

Question 2 1) a. \$168, b. 2400 DVD players

2) Demand: $p = -0.05q + 100$, Supply: $p = 0.06q + 6.5$ so (850, 57.50) is the market equilibrium. At a price of \$57.50, the quantity demanded and supplied are both 850 units.

3) 500 units

Section 2.2

Question 1 1) (-3, 9), 2) (2,1), 3) (1, -4), 4) (1, 4) 5) when price is \$100 and quantity is 50,000.

Section 2.3

Question 1 1) no solution, 2) $(\frac{3}{2}y + \frac{5}{2}, y)$ 3) 22 noninteger solutions from $z = 0$ to $z = 21$.

4) $(\frac{5}{3}z + \frac{11}{3}, -\frac{7}{3}z - \frac{4}{3}, z)$

Question 2 1) (5, 3)

Question 3 1) \$26000/7 in US bonds, \$44000/7 in mutual funds, \$0 in money market.

Section 2.4

Question 1 1) a. 3×3 , b. -3, c. 0

Question 2 1) a. $\left[\begin{array}{cc|c} -5 & 2 & 12 \\ 3 & -4 & 1 \end{array} \right]$, b. $\left[\begin{array}{ccc|c} 1 & 0 & -2 & 7 \\ 3 & -1 & -4 & -1 \\ 11 & 1 & 2 & 2 \end{array} \right]$, c. $\left[\begin{array}{cc|c} 1 & 5 & -2 \\ 2 & -1 & 6 \end{array} \right]$

$$2) \text{ a. } \begin{cases} -3x+9y=1 \\ 2x-5y=3 \end{cases}, \text{ b. } \begin{cases} x+2y-z=7 \\ y+4z=-1 \\ 3z=9 \end{cases}$$

$$3) (-1, 5, 2)$$

$$\text{Question 3 } 1) \left[\begin{array}{ccc|c} 2 & 4 & -10 & 2 \\ 1 & \frac{1}{2} & -\frac{3}{4} & \frac{3}{4} \\ 1 & -3 & 4 & 2 \end{array} \right]$$

$$2) \text{ a. } \left[\begin{array}{ccc|c} 1 & 0 & -1 & 2 \\ 0 & 4 & 4 & 6 \\ 5 & 4 & 2 & 1 \end{array} \right], \text{ b. } \left[\begin{array}{ccc|c} 1 & 0 & -1 & 2 \\ 0 & 4 & 4 & 6 \\ 0 & 4 & 7 & 9 \end{array} \right]$$

$$3) (2, -2)$$

$$\text{Question 4 } 1) \left(\frac{2}{3}z + \frac{13}{3}, \frac{1}{3}z + \frac{17}{3}, z \right)$$

Question 5 1) \$2000 in US Savings Bonds, \$4000 in mutual funds and \$4000 in money market accounts