

ECONOMICS 207
SPRING 2007
PROBLEM SET 4

Problem 1. Do the following problems from the book.

- a. Section 3.6
 - 1) 1a
 - 2) 1b
 - 3) 3
 - 4) 5
- b. Section 4.2
 - 1) 3b
 - 2) 7a
 - 3) 7b
 - 4) 13
- c. Section 4.4
 - 1) 1a
 - 2) 1b
 - 3) 3
 - 4) 7a
 - 5) 7b
 - 6) 7c
 - 7) 7d
- d. Section 4.5
 - 1) 3
 - 2) 5
- e. Section 4.6 (Besides equation 2 on page 105 of the text, equation 5 on page 106 of the text is useful.)
 - 1) 3a
 - 2) 3c
 - 3) 3d
 - 4) 3e
 - 5) 3f

Problem 2. Solve the following equations for x .

a. $12x^2 - 26x - 16 = 0$

b. $24x^2 - 121x + 42 = 0$

c. $32x^2 + 60x - 27 = 0$

Problem 3. Solve the following equations for x_1 .

a. $81x_1^{-3/5} - 3 = 0$

b. $98x_1^{-2/3} - 2 = 0$

c. $128x_1^{-5/6} - 4 = 0$

Problem 4. Solve the following equations for x_1 .

a. $81x_1^{2/5} = 3x_1$

b. $98x_1^{1/3} - 2x_1 = 0$

c. $128x_1^{1/6} - 4x_1 = 0$

Problem 5. Solve the following systems of equations for x_1 and x_2 using the method of elimination
a.

$$5x_1 + 2x_2 = 14$$

$$7x_1 - 3x_2 = 8$$

b.

$$4x_1 - 5x_2 = -9$$

$$3x_1 + 2x_2 = 22$$

c.

$$\begin{aligned} -2x_1 + 5x_2 &= 19 \\ 4x_1 + 2x_2 &= -2 \end{aligned}$$

d.

$$\begin{aligned} \frac{3}{2}x_1 + 3x_2 &= 3 \\ 4x_1 - 2x_2 &= 28 \end{aligned}$$

e.

$$2x_1 + 5x_2 = 2$$

$$4x_1 + 10x_2 = 4$$

Problem 6. Solve the following systems of equations for x_1 , x_2 and x_3 using the method of elimination

a.

$$\begin{aligned}x_1 - 2x_2 + 3x_3 &= 8 \\4x_1 - 7x_2 + 9x_3 &= 26 \\-2x_1 - 2x_2 + 13x_3 &= 21\end{aligned}$$

b.

$$\begin{aligned}x_1 + 3x_2 - 3x_3 &= 8 \\-2x_1 - 7x_2 + 9x_3 &= -24 \\3x_1 + 4x_2 + 7x_3 &= -19\end{aligned}$$

Problem 7. Solve the following systems of equations for x_1 and x_2 using the method of substitution.

a.

$$448x_1^{-3/4}x_2^{1/2} - 49 = 0$$

$$896x_1^{1/4}x_2^{-1/2} - 512 = 0$$

b.

$$18x_1^{-3/5}x_2^{1/3} - 2 = 0$$

$$15x_1^{2/5}x_2^{-2/3} - 15 = 0$$