

ECONOMICS 207
SPRING 2008
PROBLEM SET 3

Problem 1. Do the following problems from the book.

a. Section 2.1

- 1) 1d
- 2) 1f
- 3) 2f
- 4) 3c
- 5) 4d

b. Section 2.2

- 1) 2b
- 2) 2c
- 3) 3a
- 4) 3b
- 5) 3e
- 6) 4d
- 7) 4e
- 8) 4f

c. Section 2.4

- 1) 4a
- 2) 4d

d. Section 2.5

- 1) 1b
- 2) 1e
- 3) 2c

Problem 2. Solve the following equations for x .

a. $\frac{3x+4}{7x-2} = \frac{8}{13}$

b. $\frac{7x+3}{-2x-4} = -9$

c. $\frac{\frac{3x-5}{2x-3}}{2} = \frac{2}{3}$

d. $\frac{4x-3}{(5x-2)(-2x+3)} = -\frac{5}{8}$

Problem 3. Solve the following equations for x .

a. $3x^2 + 14x - 24 = 0$

b. $24x^2 - 41x + 12 = 0$

c. $4x^2 + 21x - 18 = 0$

d. $x^2 + 5x - 8 = 0$

Problem 4. Solve the following equations for x_1 .

a. $24x_1^{-1/3} - 6 = 0$

b. $243x_1^{-5/6} - 32 = 0$

c. $343x_1^{-3/5} - 8 = 0$

d. $64x_1^{-3/4} - 27 = 0$

Problem 5. Solve the following equations for x_1 .

a. $16x_1^{1/2} = x_1$

b. $24x_1^{1/3} = 6x_1$

c. $32x_1^{-1/3} = 243x_1^{1/2}$

d. $32x_1^{1/3} = 8x_1^{2/3}$

Problem 6. Solve the following systems of equations for x_1 and x_2 using the method of substitution

a.

$$\begin{aligned}x_1 + 2x_2 &= 4 \\3x_1 + 2x_2 &= 8\end{aligned}$$

b.

$$\begin{aligned}x_1 - 3x_2 &= 7 \\3x_1 + 2x_2 &= -1\end{aligned}$$

c.

$$\begin{aligned}2x_1 + 3x_2 &= 1 \\ -4x_1 - 6x_2 &= 3\end{aligned}$$

d.

$$\begin{aligned}x_1 + 3x_2 &= 9 \\ 2x_1 + 5x_2 &= 16\end{aligned}$$

e.

$$2x_1 + 3x_2 = 8$$

$$x_1 + \frac{3}{2}x_2 = 4$$

Problem 7. Solve the following systems of equations for x_1 , x_2 , and x_3 using the method of substitution.

a.

$$\{x_1 = 1, x_2 = 3, x_3 = -2\}$$

$$x_1 + 2x_2 - 2x_3 = 11$$

$$3x_1 + 7x_2 - 10x_3 = 44$$

$$3x_1 + 4x_2 + x_3 = 13$$

b.

$$\{x_1 = 1, x_2 = -1, x_3 = 2\}$$

$$3x_1 + \frac{1}{3}x_2 + 2x_3 = \frac{20}{3}$$

$$6x_1 + x_2 + 4x_3 = 13$$

$$-3x_1 - 2x_2 - 3x_3 = -7$$

c.

$$\{x_1 = 2, x_2 = 2, x_3 = -1\}$$

$$\frac{1}{2}x_1 + 2x_2 + x_3 = 4$$

$$2x_1 + 10x_2 + 4x_3 = 20$$

$$3x_1 + 6x_2 + 7x_3 = 11$$

Problem 8. Solve the following systems of equations for x_1 and x_2 using the method of substitution.

a.

$$144x_1^{-2/3}x_2^{1/3} - 27 = 0$$

$$144x_1^{1/3}x_2^{-2/3} - 64 = 0$$

b.

$$576x_1^{-2/3}x_2^{1/6} - 128 = 0$$

$$288x_1^{1/3}x_2^{-5/6} - 27 = 0$$