

ECONOMICS 207
SPRING 2008
PROBLEM SET 2

Problem 1. Do the following problems from the book.

- a. Section 2.3
 - 1) 2a
 - 2) 2d
 - 3) 2e
- b. Section 2.3
 - 1) 3a
 - 2) 3b
 - 3) 4a
- c. Section 3.1
 - 1) 1a
 - 2) 1b
 - 3) 1c
- d. Section 3.2
 - 1) 1
 - 2) 2
- e. section 4.2
 - 1) 1a
 - 2) 3a
 - 3) 6

Problem 2. Carry out the following long division operations.

a. $18 \overline{)234}$

b. $19 \overline{)228}$

c. $143 \overline{)65245}$

d. $49 \overline{)117649}$

Problem 3. Complete the square in the following and then write in the following form $(x + a)^2 + c$. For example the first problem would be written $(x + 1)^2 - 1$.

a. $x^2 + 2x$

$$(x + 1)^2 - 1.$$

b. $x^2 - 10x$

c. $5x^2 + 20x$

d. $7x^2 - 28x$

e. $10x^2 - 20x + 90$

f. $x^2 + 5x$

Problem 4. Simplify, add, subtract, multiply or divide the following fractions. Express all answers in reduced form.

a. $\frac{35}{80} + \frac{7}{16}$

b. $\frac{13}{35} + \frac{3}{49}$

c. $\left(\frac{455}{910}\right) \left(\frac{\frac{18}{5}}{\frac{9}{10}}\right)$

d. $\frac{1}{11} + \frac{1}{3} + \frac{44}{77} - \frac{11}{21}$

e. $\frac{8a}{3b} + \frac{3b}{a} + \frac{5}{b}$

f. $\frac{a}{ab-b^2} - \frac{2}{a-b} + \frac{ab+b^2}{a^3-ab^2}$

Problem 5. Factor the following.

a. $2x^2 - x - 10$

b. $3x^2 - 17x - 28$

c. $9x^2 - 17x - 30$

d. $18x^2 - 123x - 21$

e. $8x^2 + 22x + 15$

f. $20x^2 + 64x - 21$

Problem 6. Solve the following equations for x .

a. $2x + 3 = 15$

b. $7x + 3 = 39 - 5x$

c. $\frac{x + 84}{2x - 3} = 10$

d. $\frac{2x - 7}{3x + 2} = \frac{3}{17}$

e. $\frac{x^2 + x - 6}{(x + 3)(x - 2)} = \frac{1}{4}$

f. $\frac{x + 7}{(x - 5)(x + 2)} = \frac{1}{2}$

Problem 7. Solve the following equations for x .

a. $x^2 - 3x - 28 = 0$

b. $3x^2 - 17x - 28 = 0$

c. $3x^2 - 7x - 20 = 0$

d. $18x^2 - 9x - 20 = 0$

e. $20x^2 + 17x - 10 = 0$

f. $9x^2 - 36x - 28 = 0$

Problem 8. Solve the following equations for x_1 .

a. $9x_1^{-1/4} - 3 = 0$

b. $24x_1^{-1/4} - 6 = 0$

c. $243x_1^{-4/7} - 3 = 0$

d. $125x_1^{-2/3} - 5 = 0$

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

f. $1250x_1^{-4/3} - 2 = 0$

Problem 9. Consider the following quadratic equation in x_1 .

$$p(3a_3x_1^2 + 2a_2x_1 + a_1) = w_1$$

In each of the problems below solve the equation for x_1 for the given values of a_3, a_2, a_1, p and w_1 .

a. $a_3 = -1, a_2 = 20, a_1 = 100, p = 20$ and $w_1 = 500$

b. $a_3 = -1, a_2 = 5, a_1 = 50, p = 10$ and $w_1 = 20$

c. $a_3 = -2, a_2 = 50, a_1 = 200, p = 10$ and $w_1 = 4860$

d. $a_3 = -2, a_2 = 50, a_1 = 150, p = 15$ and $w_1 = 4500$