

ECONOMICS 207
SPRING 2008
PROBLEM SET 1

Problem 1. Do the following problems from the book.

a. Section 1.2

- 1) 4a
- 2) 4b
- 3) 4c
- 4) 13a

b. Section 1.3

- 1) 1b
- 2) 2a
- 3) 4a
- 4) 4c
- 5) 9a
- 6) 12a
- 7) 12c
- 8) 15c
- 9) 15f

c. Section 1.4

- 1) 2b
- 2) 3a
- 3) 3c
- 4) 5b
- 5) 6f

d. Section 1.5

- 1) 1d
- 2) 1f
- 3) 3d
- 4) 4a
- 5) 4g
- 6) 5b
- 7) 6a
- 8) 6b
- 9) 6c
- 10) 9a
- 11) 9d

Date: January 14, 2008.

Problem 2. Carry out the following operations.

a. $2^2 * 2^4$

b. $(2^2)^4$

c. $(2 + 2)^3$

d. $2^3 + 2^4$

e. $(2 * 2)^3$

f. $(2^2)^3$

g. $(6^2) * (2^2)$

Problem 3. Carry out the following operations.

a. $3^2 * 3^3$

b. $(3^2)^3$

c. $(3 + 3)^3$

d. $3^3 + 3^4$

e. $(3 * 3)^2 + 36^{\frac{1}{2}}$

f. $(3^2)^2 + 216^{\frac{1}{3}}$

g. $(7^2)^2$

Problem 4. Carry out the following operations.

a. $(5^2)^2$

b. $(a^2)^2$

c. $2^2 * 2^3 * 2^4$

d. $2^2 * 2^x * 2^4$

e. $(2^3 * 2^x)^2 * 2^4$

f. $(5 * x_1^{\alpha_1} * 2^3)^2$

g. $(Ax_1^{\alpha_1}x_2^{\alpha_2})^2$

Problem 5. Simplify the following expressions.

a. $\frac{4^2}{4}$

b. $\frac{2^2 a^2}{2a^3}$

c. $\left(\frac{3^2 a^2}{3a^3}\right)^2$

d. $\frac{4^2 a^2 a^4}{2a^3 4^2}$

Problem 6. Simplify, add, subtract, multiply or divide the following fractions. Express all answers in reduced form.

a. $\frac{21}{35}$

b. $\left(\frac{252}{462}\right) \left(\frac{4}{\frac{1}{2}}\right)$

c. $\frac{\frac{686}{245}}{\frac{441}{294}}$

d. $\frac{3}{4} + \frac{5}{10} + \frac{2}{5}$

e. $\frac{7}{4} + \frac{5}{11} + \frac{17}{22}$

f. $\frac{5}{16} + \frac{1}{3} + \frac{1}{12} - \frac{5}{6}$

g. $\frac{5}{8} \frac{16}{5} + \frac{1}{\frac{1}{2}} - \frac{7}{35} + \left(\frac{5}{7}\right)^{-2}$

h. $\frac{\frac{4}{13}}{\frac{1}{39}} + \frac{\frac{3}{4}}{\frac{13}{52}} - \frac{\frac{5}{65}}{\frac{13}{5}}$

i. $\frac{\frac{1}{2}}{\frac{4}{12}} - \frac{3}{16} \left(\frac{3}{16}\right)^{-2}$

Problem 7. Complete the following operations.

a. $e^{2x}e^{4x}$

b. $(e^{2x})^3$

c. $e^{\log(x)}$

d. $\frac{4x_1^{1/3}}{x_1}$

e. $\frac{1}{3} \frac{Ax_1^{1/3}x_2^{1/2}}{x_1}$

f. $(3 + 2x)(3 - 2x)$

g. $(3 + 2x)(3 - 2x)(3 + 2x)$

h. $(x - 2)^3$

i. $\frac{(x^2 - 6x + 9)(x - 2)}{(x - 3)(x - 3)}$

Problem 8. Factor the following.

a. $x^2 - 6x + 9$

b. $x^2 - 25$

c. $x^2 - x - 12$

d. $3x^2 + 15x - 42$

e. $12x^2 - x - 6$

f. $x^2 + \sqrt{-1}x + 2$