

**ECONOMICS 207**  
**SPRING 2008**  
**LABORATORY EXERCISE 2**

**Problem 1.** Carry out the following long division operations.

a.

$$\begin{array}{r} 13 \\ 11 \overline{)143} \\ \underline{110} \\ 33 \\ \underline{33} \\ 0 \end{array}$$

b.  $13 \overline{)208}$

c.  $14 \overline{)154}$

d.  $35 \overline{)1421}$

---

*Date:* January 26, 2008.

e.  $73 \overline{)6872}$

f.  $173 \overline{)52326}$

g.  $141 \overline{)16779}$

**Problem 2.** Complete the square in the following and then write as  $(x + a)^2 + b$ .

a.  $x^2 + 4x$

$$(x + 2)^2 - 4$$

b.  $x^2 - 12x$

c.  $x^2 - 8x$

d.  $2x^2 - 16x$

e.  $x^2 + 8x + 20$

f.  $x^2 - \frac{2}{3}x + \frac{1}{9}$

g.  $x^2 - 4x(a + bt)$

**Problem 3.** Simplify, add, subtract, multiply or divide the following fractions. Express all answers in reduced form.

a.  $\frac{35}{36} + \frac{3}{8}$

b.  $\frac{7}{25} + \frac{17}{24}$

c.  $\left(\frac{75}{144}\right) \left(\frac{5}{4}\right)$

d.  $\frac{5}{12} + \frac{1}{3} + \frac{5}{36} - \frac{7}{16}$

e.  $\frac{1}{5} + \frac{12}{49} + \frac{5}{84}$

f.  $\frac{7}{65} + \frac{3}{77} + \frac{6}{91}$

**Problem 4.** Factor the following.

a.  $x^2 + 4x + 4$

b.  $x^2 - 8x + 16$

c.  $4x^2 - 32x + 64$

d.  $2x^2 - 8x - 42$

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

f.  $12x^2 - 23x - 24$

**Problem 5.** Solve the following equations for  $x$ .

a.  $4x + 5 = 29$

b.  $4x + 3 = 24 - 3x$

c.  $\frac{3x+5}{4x-5} = 2$

d.  $\frac{x+5}{4x+3} = \frac{10}{23}$

e.  $\frac{x+3}{2x+7} = \frac{7}{15}$

f.  $x^2 + 4x + 4 = 0$

g.  $x^2 - 7x - 18 = 0$

h.  $6x^2 - x - 12 = 0$

**Problem 6.** Solve the following equations for  $x_1$ .

a.  $16x_1^{-1/2} - 2 = 0$

b.  $12x_1^{-1/2} - 4 = 0$

c.  $18x_1^{-1/3} - 6 = 0$

d.  $20x_1^{-2/3} - 5 = 0$

e.  $27x_1^{-3/4} - 8 = 0$

f.  $18x_1^{-2/5} - 2 = 0$

g.  $48x_1^{-4/5} - 3 = 0$