

**ECONOMICS 207**  
**FALL 2006**  
**PROBLEM SET 2**

**Problem 1.** Complete the square in the following and then write in the following form  $(x + a)^2 + c$  or  $(x + a)^2$  if  $c = 0$ .

(1)  $x^2 + 2bx + b^2$

(2)  $9x^2 + 48x + 64$

(3)  $16x^2 + 48x + 36$

(4)  $x^2 + 11 - 2x$

(5)  $a^2x^2 - 2adx + d^2$

**Problem 2.** Factor the following.

(1)  $2x^2 + 5x - 3$

(2)  $7x^2 - 4x - 3$

(3)  $16x^2 + 20x - 24$

(4)  $10x^2 - 4x - 6$

**Problem 3.** Solve the following equations for  $x$ .

(1)  $13x + 7 = 34 - 4x$

(2)  $\frac{2x-7}{x+4} = \frac{1}{8}$

(3)  $\frac{x-4}{(x-5)(x+1)} = \frac{1}{8}$

(4)  $\frac{x+6}{(x-1)(x+6)} = \frac{1}{7}$

**Problem 4.** Solve the following equations for  $x$ .

(1)  $x^2 + x - 30 = 0$

(2)  $x^2 - 10x + 16 = 0$

(3)  $x^2 + 4x + 3 = 0$

(4)  $24 + 10x + x^2 = 0$

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

(1)  $4x^{-\frac{1}{4}} - 3 = 0$

(2)  $12x^{-\frac{3}{7}} - 54 = 0$

(3)  $ax^{-\frac{3}{4}} - d = 0$

(4)  $12x^{-\frac{3}{8}} - 8 = 0$