

**Basic Mathematics**  
**Lectures 6, 7, and 8**  
**Assignment 4 (40 Points)**

**Instructions**

- a) Attempt all the questions. This Assignment covers lectures 6 to 8.
- 1) Expand the following expressions; (6 Points)
- a)  $(x^2 + y^3)(2x + z^2 - y^3)$
  - b)  $(8x^2 - 3y + 2)(x - y)$
  - c)  $(y + 7)(y - 3)$
- 2) Determine the corresponding quadratic equation of the form  $ax^2 + bx + c = 0$  given the following pair of roots; (6 Points)
- a)  $x = 7, x = -11$
  - b)  $x = 2i, x = 5i$
  - c)  $x = \frac{1}{7}, x = \frac{2}{9}$
- 3) Solving the following using factorization method;(6 Points)
- a)  $x^2 + 10x - 11 = 0$
  - b)  $5x^2 - 12x + 7 = 0$
  - c)  $x^2 - 7x + 12 = 0$
  - d)  $x^2 + x + 7 = 0$
- 4) Solve the following using quadratic formula; (6 Points)
- a)  $x^2 + 70x + 851 = 0$
  - b)  $7x^2 + 5x - 2 = 0$
  - c)  $5x^2 + x + 13 = 0$
- 5) Use completing the square method to solve the following; (8 Points)
- a)  $5(x - 11)^2 + 1 = 721$
  - b)  $x^2 + x + 11 = 0$
  - c)  $7x^2 + 4x - 3 = 0$
  - d)  $3x^2 + 2x - 1 = 0$
- 6) Use the Graph© software to plot the graph of  $y = x^2 + 4x - 5$  over  $-6 \leq x \leq 2$  and hence use it to solve the equation  $x^2 + 4x - 5 = 0$  ( 8 Points)