TANG KING PO SCHOOL

UNIFORM TEST : ADDITIONAL MATHEMATICS

NAME

F.4( ) Class No:_____ MARK:_____

Date: 31/10/2003 *Time allowed: 30 min.*

ANSWER ALL QUEATIONS: (25% each)

(1). Solve the following equations, leaving your answers in surd form if necessary.

(a). $(x-7)(x+1)=x-11$

(b). $4x-4\sqrt{x}-3=0$

(c). $(x^2-3x)^2-2(x^2-3x)-8=0$

(2). Let α and β be the roots of the quadratic equation $2x^2 - 3x + 4 = 0$.

(a). Find the values of the following

(i). $\alpha + \beta$ (ii). $\alpha \cdot \beta$

(iii). $(\alpha^2 + 1) + (\beta^2 + 1)$

(iv). $(\alpha^2 + 1) \cdot (\beta^2 + 1)$

(b). Hence form a quadratic equation with integral coefficients whose roots are $(\alpha^2 + 1)$ and $(\beta^2 + 1)$.

(3). Find the value(s) of k if α and $\alpha + 4$ are the roots of the quadratic equation $x^2 - (k-4)x + 2k - 12 = 0$.

(4). Given that the maximum value of the function $f(x) = 4m + 18x - mx^2$, where $m > 0$, is 45. Find the value(s) of m.