TY Honours Maths –Problem Set 9

Name of Student: _____ Final Mark: _____

1. Write down a quadratic equation that has roots of ⅓ and ¾ in the form of $ax^2+bx+c=0$ where $a,b,c \in Z$.	**2**. Solve the following equation leaving your answers in surd form: $x^2+8x-2=0$
3. A quadratic function has roots of 2 and -3. It also contains the point (1, -12). Evaluate the function.	**4.** Solve the following system of equations. $y=2x+2$ $xy=4$

5. The function $f(x) = 2x^2 + 8x - 2$ can be expressed as $a(x+b)^2 + c$, where $a, b, c \in Z$

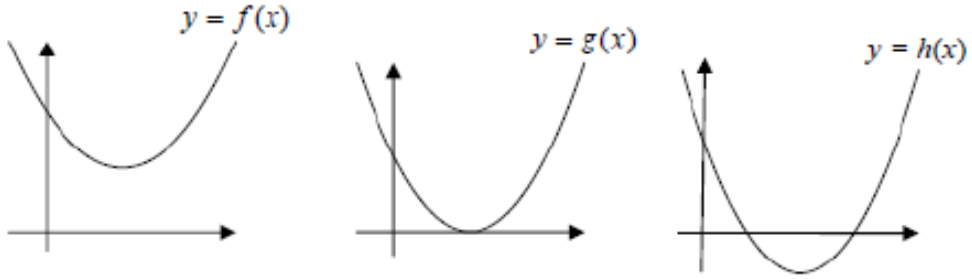
(i) Using the method of completing the square, find the values of a, b and c.

(ii) Hence, find the co-ordinates of the local minimum of the curve.

(iii) Solve the equation $f(x) = 0$, writing your answers in surd form.

6.(i)

The graphs of three quadratic functions, f, g and h, are shown.



In each case, state the nature of the roots of the function.

Function	**Nature of Roots**
$f(x)$	
$g(x)$	
$h(x)$	

(ii)

By evaluating the discriminant, or otherwise, match each curve above to one of the following functions giving a reason for your choice:

x^2+5x+5 , x^2+2x+5, and x^2-4x+4

$f(x) =$ _____ Reason:_____

_____

$g(x) =$ _____ Reason:_____

_____

$h(x) =$ _____ Reason:_____

_____