**CALCULATOR ALLOWED**

1. Solve the following equations.   
   Give exact values when possible. If not possible, then round to the nearest hundredth.  
   a)   
     
     
     
   b)   
     
     
     
   c)   
     
     
     
     
     
     
   d)   
     
     
     
     
     
     
   e)   
     
     
     
     
     
     
     
   f)   
     
     
     
     
     
     
     
     
   g)   
     
     
     
     
     
     
     
   h) for   
     
     
     
   i) for   
     
     
     
   j) (general solution in radians)  
     
     
     
     
   k) 3 for   
     
     
     
     
     
   l) for   
     
     
     
     
   m) for   
     
     
     
     
     
   n) for   
     
     
     
     
     
     
     
   p) for   
     
     
     
     
     
     
     
     
     
   q)   
     
     
     
     
     
     
     
     
     
     
     
   r)   
     
     
     
     
     
     
     
     
     
     
     
     
   s)   
     
     
     
     
     
     
   t)   
     
     
     
     
     
     
     
   u)

**NON-CALCULATOR SECTION**

1. Let   
     
   a) Describe what transformations can be applied to the graph of to get the graph of .  
     
     
     
     
     
     
     
     
   b) Determine the domain and the range of *f*.  
     
     
     
     
   c) Determine the inverse of *f* and state its domain and its range.  
     
     
     
     
     
     
     
     
     
     
     
     
   d) Graph *f* and its inverse.



1. Let   
     
   a) Describe what transformations can be applied to the graph of to get the graph of .  
     
     
     
     
     
     
     
     
   b) Determine the domain and the range of *g*.  
     
     
     
     
   c) Determine the inverse of *g* and state its domain and its range.  
     
     
     
     
     
     
     
     
     
     
     
     
   d) Graph *g* and its inverse.

  
  
e) Restrict the domain of *g* so that its inverse is a function.

1. Graph the following functions and their asymptotes :  
     
   a) b)   
      
     
     
     
     
     
     
     
     
     
   a) b)   
     
      
     
     
     
     
     
     
     
     
     
     
     
   c) c)   
     
      
     
     
     
     
     
     
     
     
     
   c) c)   
     
      
     
     
     
     
     
     
     
     
     
     
     
     
   d)   
     
      
     
   d)   
     
   
2. Expand and simplify the following expressions :   
   a)   
     
     
     
     
     
     
     
     
   a)

1. Prove the following identities :  
   a)   
     
     
     
     
   b)   
     
     
     
     
   c)