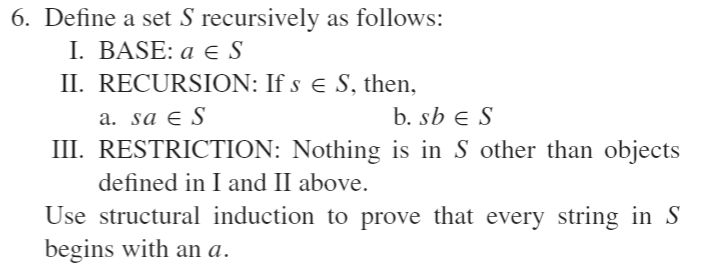
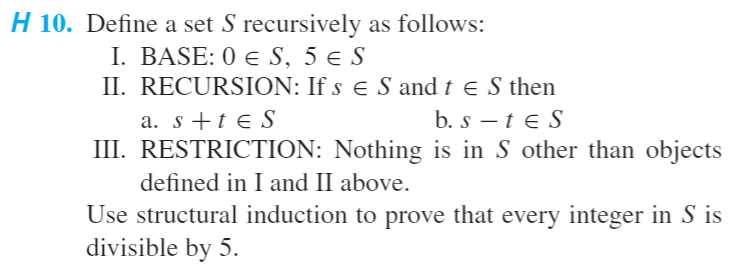
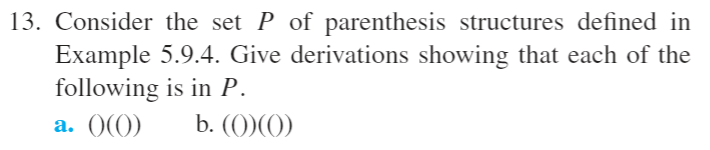
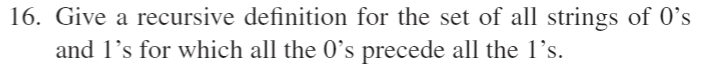
**Assignment 6 – Part 2  
Set 5.9 - 6, 10, 13.b, 16**

  
**The only object in the base for is , which begins with an .  
The recursion for consists of two rules denoted II(a) and II(b). When rule II(a) is applied to the base the result is , which begins with an . Rule II(a) can be applied over and over and the result will always begin with an . Similarly, rule II(b) applied to the base results in , which also begins with an . Rule II(b) can also be applied over and over with the result always beginning with an .   
Because no objects other than those obtained through the base and recursion conditions are contained in , it must be the case that every object in satisfies the property that every string begins with an [what we needed to show.]**

  
**The base objects of and are both divisible by 5.  
The recursion for consists of two rules denoted II(a) and II(b).   
By II(a),   
These sums are all divisible by 5. If we were to keep adding up these sums, we would always get a result divisible by 5.  
By II(b),  
These differences are all divisible by 5. If we were to keep subtracting these differences, we would always get a result divisible by 5.  
Because no objects other than those obtained through the base and recursion conditions are contained in , it must be the case that every object in is divisible by 5.**

  
**(1) By I, () is in P.  
(2) By (1) and II(a), (()) is in P.  
(3) By (2), (1), and II(b), (())(()) is in P.**

  
**I. BASE: is in , where is the null string.  
II. RECURSION: If , then  
 (a) and (b) ,  
 where and are the concatenations of with and respectively.  
III. RESTRICTION: Nothing is in other than objects defined in I and II above.**