群论9.5 (1)4、18、29、30@353-354,  
18: Prove N is normal subgroup iff a-1Na=N for all a∈G.  
(1)If N is normal subgroup,   
then ∀a∈G, aN=Na, and e∈N.   
so a-1Na=Na-1a=Ne=N.  
(2)If a-1Na=N for all a∈G,   
 let n∈N, a-1na= n’ for some n‘∈N.   
 a⋅ a-1na= a⋅ n’, na=an’ ∈aN, Then Na⊆ aN.  
Similarly, let n∈N, n= a-1n’a, an=a a-1n’a=n’a, Then aN ⊆ Na.   
Hence, aN=Na, N is normal subgroup.