Discrete Mathematics

If $S_i$, ($0 \leq i < k$) are finite sets, give without proof a formula for $|\bigcup_i S_i|$ in terms of the sizes of $S_i$ and the intersections of sets of $S_i$’s.

Use this to yield an explicit formula for the number of surjections from a set $A$ to a set $B$. 

[20 marks]