<u>Problem set 5</u> (optional) The purpose of this problem set is to help you make up for any one of the required problem sets that you "bombed" (i.e., that you received a grade lower than 70 on). Here's the procedure:

Select one or more rows of the following diagram. Fill in each square of that row with + (for "yes") or - (for "no"). For each row filled in correctly, I will add 6 points to the score of whichever of your problem sets has the lowest score (up to a maximum of 70 points for that problem set). The same rules as usual-no collaboration, please. Entries may be submitted before or at the final exam. Decisions of the judges will be final. No box tops needed to enter!

For the first six rows of the diagram, the question is this: "Is the given property satisfied by the given space?" For the last three rows, it is: "Is the given property preserved by the given operation?"

	connected	path connected	compact	locally compact Hausdorff	Hausdorff	Regular	Normal	First-countable	Second-countable	Lindelöf	Has countable	dense subset	Locally metrizable	Metrizable	Completely regular	
S _V											·.	·				
The ordered square																
$\mathbb{R}_{\ell} \times \mathbb{R}_{\ell}$					•							·				
R ^w in uniform topology																•
R ^I in product topology			,			,	-							·		
An arbitrary metric space																•
Taking countable products												·				
Taking a closed subspace									-							
Taking an open																