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Michael Follett, Catherine Pelland, Robert Won and Elizabeth McMahon*
(mcmahone@lafayette.edu). *SET[®] and disjoint complete caps in $AG(4, 3)$.*

In the card game SET[®], it is possible to have 20 cards containing no sets. These are the complete caps of the affine geometry $AG(4, 3)$. We examine the structure of these caps as well as when it is possible for two caps to be disjoint. We find a decomposition of $AG(4, 3)$ into disjoint complete caps and determine how such decompositions are permuted by the affine transformations. (Received September 21, 2010)