1135-05-1520 **Vladimir Bercov*** (v.bercov@yahoo.com), 153 Tysens Lane, Staten Island, NY 10306.
Connected dominating sets and a new graph invariant.

We define a new invariant $\eta(G)$ of a graph $G = (V, E)$ as a maximum length of a sequence of subsets of vertices $V_1, V_2, V_3, \ldots,$ where $V_i \cap V_j = \varnothing$ $(i \neq j)$, every vertex of $V_1 \cup V_2 \cup \cdots \cup V_{(k-1)}$ is adjacent to a vertex in V_k, and subgraph induced by V_k $(k \geq 2)$ is connected. From the definition it follows that $\omega(G) \leq \eta(G) \leq h(G)$, where $\omega(G)$ is clique number and $h(G)$ is number of Hadwiger. If chromatic number $\chi(G) \leq 4$ then $\eta(G) \geq \chi(G)$. The Nordhaus-Gaddum inequalities for the new invariant are: $\eta(G)\eta((G)) \geq n(G)$, $\eta(G)+\eta(G) \leq 6n(G)/5$, where $n(G) = |V|$. For graphs G with independence number three without induced chordless cycles of length seven, connected dominating number $\gamma_c(G) \leq 4$ and $\eta(G) \geq n(G)/4$. Conjecture: for every graph $G : \eta(G) \geq \chi(G)$. (Received September 22, 2017)