

QUERIES

The following queries were submitted by Professor Chris Freiling in conjunction with his paper, "A converse to a theorem of Sierpinski on almost symmetric sets". They will be collectively assigned the number 189.

The following queries deal with the subject of the Inroads article, "A converse to a theorem of Sierpinski on almost symmetric sets".

Define a function to be \mathcal{L} -symmetrically continuous if $\lim_{h \rightarrow 0}^{\mathcal{L}} f(x+h) - f(x-h)$ is everywhere zero.

Query 1: Assume ZFC + \neg CH. If a real function is co-countably symmetrically continuous almost everywhere, must it be measurable?

Query 2: Assume ZFC + "R is not the \aleph_1 union of null sets" + "Every non-null set contains a non-null subset of size \aleph_1 ". If a real function is approximately symmetrically continuous almost everywhere, must it be measurable?

Sierpinski's Theorem shows the necessity of additional assumptions beyond ZFC. Affirmative answers would imply the main results of the Inroads article, and provide a more complete converse to the theorem of Sierpinski mentioned there.