Title: On multiplicative functions which are additive on almost primes

Author(s): Poo-Sung Park

In 1992, C. Spiro showed that if a multiplicative function $f$ satisfies $f(p + q) = f(p) + f(q)$ for all primes $p$ and $q$, and $f(p_0)$ does not vanish at some prime $p_0$, then $f$ is the identity function. In this article, we extend Spiro’s result to products of exactly $k$ prime factors with multiplicity, which are called $k$-almost primes. That is, if a multiplicative function $f$ satisfies $f(P + Q) = f(P) + f(Q)$ for all $k$-almost primes $P$ and $Q$, and $f(n_0)$ does not vanish at some $k$-almost prime $n_0$, then $f$ is the identity function.

Address:
Poo-Sung Park
Department of Mathematics Education
Kyungnam University
Changwon, 51767
Republic of Korea