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Arithmetic Derivatives and Number Theory.

A "derivative operator" on integers satisfies the product rule for composite numbers and assigns 1 to all primes. In 2003, Ufnarovski and Ahlander described how this derivative could be applied to certain number theory problems. After introducing its basic properties, we will expand the technique to a variety of problems, and show how "derivative equations" may be used to define classes of primes. (Received September 19, 2007)