962-11-870 **William G McCallum*** (wmc@math.arizona.edu). *Brauer Points on Fermat Curves.*

The set of rational points on a variety X over a number field K is contained in its set of adelic points; this is the Hasse principle. Manin pointed out that the Brauer group could be used to cut out a subset of the adelic points, which we call the Brauer points. The Brauer points also contain the rational points, and sometimes provide a good bound for them when the adelic points do not, for example when the set of Brauer points is empty. One can also give a natural definition for the set of S-Brauer points, where S is a subset of the valuations of K. It would be interesting to know how well the Brauer points can bound the rational points in cases where the latter set is nonempty. As in example in this direction, we show that if $S = \{p\}$ and X is the curve over the rationals defined by the equation

$$x^p + y^p = 1,$$

and if a certain hypothesis on the ideal class group of the p-th cyclotomic field is satisfied, then the set of S-Brauer points is exactly the set of rational points. (Received September 28, 2000)