The Local-Global Principle: A Brief Introduction to the $p$-adic Numbers

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ABSTRACT:
We will discuss the Local-Global Principle (also known as the Hasse Principle) in Number Theory to motivate an introduction to the $p$-adic numbers. Our main focus will be the Hasse-Minkowski theorem and its proof. We will then briefly discuss two well-known counter-examples to the Hasse Principle in Number Theory. If time permits, we will also discuss other examples of the Hasse-Principle outside of Number Theory.

Any questions, please e-mail: rnoble@mathstat.dal.ca.