



James Madison University Saturday, September 26, 2015

Dan Velleman, Amherst College

Erica Flapan, Pomona College



“An Introduction to Constructive Mathematics”
“Intrinsic Properties of Graphs Embedded in R^3 ”

SUMS XI 2015

For more information please see: <http://www.jmu.edu/mathstat/sums>

Abstract: Almost all mathematicians agree about what methods of reasoning are acceptable in mathematics--almost all, but not quite all. A small group of mathematicians practice a kind of mathematics known as constructive mathematics. Constructive mathematicians do not accept all of the laws of logic that most mathematicians use. For example, they do not accept the Law of Excluded Middle, which says that for any statement P , either P or $not-P$ is true. Since constructive mathematicians do not use the same laws of logic as other mathematicians, the theorems they prove are also different. In this talk, I will discuss the philosophical motivation for constructive mathematics, and then I will give some examples to illustrate the methods and theorems of constructive mathematics.

DAN VELLEMAN

Abstract: Knot theory is the study of embeddings of simple closed curves in R^3 . A natural extension of knot theory is the study of embeddings of graphs in R^3 . However, in contrast with knots, the structure of a graph can be complex, and this can affect all of its embeddings. If every embedding of a graph has a particular property, then we say that property is *intrinsic* to the graph. For example, a graph is said to be *intrinsically knotted* if every embedding of the graph in R^3 contains a knot. In this talk I will introduce intrinsic knotting and other intrinsic properties of graphs.

ERICA FLAPAN

