1046-97-684

Annie Selden\* (aselden@math.nmsu.edu), Dept. of Mathematical Sciences, New Mexico State University, Las Cruces, NY 88003-8001, and John Selden (jselden@math.nmsu.edu), Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003-8001. Habits of Mind for Proving.

There are certain aspects of proving that mathematicians do automatically, but that students are often unaware of. We define the formal-rhetorical part of a proof to be those aspects of a proof that can be written by examining the logical structure of the statement of a theorem and by unpacking associated definitions. Examples include writing the first and last lines, unpacking the last line, considering what strategy one might invoke to prove it, and unpacking the hypotheses. Writing the formal-rhetorical part of a proof can expose "the real problem" to be solved. Students need to make doing such things automatic, that is, they must become habits of mind. Beginning students often fail to examine the conclusion; instead, they have a habit of beginning with the hypotheses and forging ahead rather blindly. This may come from high school geometry where this strategy may have served them well. This is a "bad habit" that needs to be replaced by the "good habit" of examining the conclusion. We will discuss this and other habits of mind that can be encouraged such as looking up definitions when one is unsure of what a term means – something students are often reluctant to do. (Received September 10, 2008)