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ABSTRACT. In this talk I will argue that the aim of mathematics is understanding. That is, understanding is of more value and interest to mathematicians than mere knowledge. This has become apparent with the development of mathematics in the past century. In his well-known paper, “Proof and Progress in Mathematics”, Thurston says of mathematical practice: “what we are doing is finding ways for people to understand and think about mathematics”. This remark clearly suggests that understanding plays an important role in mathematical practice, but is somewhat enigmatic in that it does not make clear how or why understanding is so important for mathematics. My goal will be to unpack this claim in order to give a more precise account of the role and importance of understanding. I will first give an account of how mathematical understanding is more valuable than knowledge, and then will argue that understanding is necessary for mathematical progress and development.

After establishing the importance of understanding, a natural follow-up question is how it is that mathematicians obtain understanding. In the interest of providing a partial answer to this question, I will consider how mathematical cultures contribute to understanding and how understanding is transferred between cultures. In short, I will argue that mathematical cultures are crucial for facilitating wide-spread mathematical understanding.