

*Proof*, BY DAVIS AND HERSH

1. As you read this, skim over the proof of the Pythagorean Theorem. How does it compare to the one we gave in class?
2. Why is the proof (proofs) of the Pythagorean Theorem important?
3. What are axioms and what role do they play in proof? Can you think of any axioms?
4. What do you think of the quote by Edna Millay?
5. Summarize the purposes of proof presented on page 151. How does this list relate to things we learned from *The Proof* (the video about Andrew Wiles)?
6. What are the authors trying to say in the last paragraph?

*A Socratic Dialogue on Mathematics*, BY ALFRED RENYI

7. Many people throughout history have viewed mathematics as a source of certain knowledge. Some have felt it is the only such source. Do you agree? That is, does mathematics seem to you to be a source of certain knowledge? Is it the *only* such source?
8. How would you answer Hippocrates question on page 14: “Even if it is complete and beyond any doubt, what is the use of knowledge concerning things which do not exist in reality?”
9. Agree or disagree: “The main aim of the mathematician is to explore the secrets and riddles of the sea of human thought.” (page 17) Explain why you took the position you took.
10. Does it surprise you as much as the characters in the story that mathematics has uses in the real world? Explain.
11. What do you think of the claim on page 20 that “the world of mathematics is a reflected image of the real world in the mirror of our thinking”?
12. Summarize the uses of mathematics discussed on pages 22–23. Do these seem correct to you. Are any left out?
13. What do you think of the last statement made by Socrates (pages 24–25) about mathematics and its relation to other endeavors? In particular, what does Socrates see as the great strength and contribution of mathematics? What do you think of his desire to extend this to other disciplines?
14. In what ways do you think your study of mathematics will (or could) effect how you think about other things?
15. Pick any discipline other than mathematics. How does one make a convincing or persuasive argument in that discipline? How does that compare with a convincing and persuasive argument in mathematics? How does this discussion compare with the starting point of Hippocrates in this dialogue?