

The language of mathematics

“By a *conjecture* we mean a proposition that has not yet been proven but which is favored by some serious evidence. It may be a significant amount of computational evidence, or a body of theory and technique that has arisen in the attempt to settle the conjecture.

An *open question* is a problem where the evidence is not very convincing one way or the other.

A *theorem*, of course, is something that has been proved. There are important theorems, and there are unimportant (but perhaps curious) theorems.

The distinction between open question and conjecture is, it is true, somewhat subjective, and different mathematicians may form different judgements concerning a particular problem. We trust that there will be no similar ambiguity concerning the theorems.”

— Dan Shanks [Shanks85] p. 2]

Today we might add to this a *heuristic* argument, in which we explore an open question with techniques that help give us a good idea of what to conjecture, even if those techniques are unlikely to lead to a formal proof.