

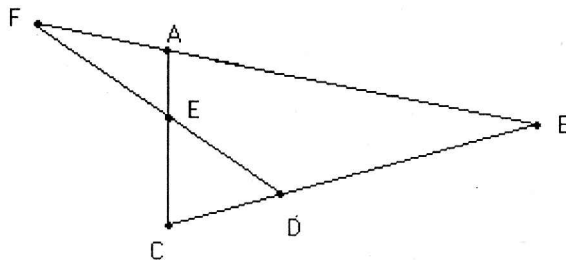
Menelaus Theorem

I chose to present the Menelaus Theorem, finding an interesting reference on the Internet about a letter from Albert Einstein to his friend Max Wertheimer. Apparently they were discussing the beauty of proofs, and Einstein used two proofs of the Menelaus Theorem, one ugly, and the other elegant, (in his opinion) to illustrate his point. I will discuss and analyze these proofs in this paper.

Einstein wrote, (of a proof) "...we are completely satisfied only if we feel of each intermediate concept that it has to do with the proposition to be proved."

The Menelaus Theorem states:

Let three points F, D, and E, lie respectively on the sides AB, BC, and AC of $\triangle ABC$. If the points are collinear, then $AF/BF * BD/CD * CE/AE = 1$.



As you can see, the theorem allows, and requires, that at least one of the points lie on the extension of the corresponding side, since a straight line cannot cross all three sides of a triangle. (On an interesting side note, in a 1945 Russian math competition, one boy did not see the fact that a straight line can't cross a three sides of a triangle as obvious. For that insight, he was awarded first prize, even

