Deductive Proofs

The proof is the rhetoric of math. It is akin to writing a typical 5 paragraph essay with an introduction, a body and a conclusion. Proofs do not make use of either ethos or pathos, but rather rely completely on logos. The deductive proof is an argument. The proof begins by stating what it sets out to prove and ends in a conclusion that can be logically drawn or inferred in steps from statements that are relied upon as truths that need no explanation. We will use the following as truth statements for our honors geometry course:

* definitions (both from the GFEC text and Euclid)
* postulates, and common notions.

Once a matter has been proven, that proof can now be used as a truth statement for further proofs. Proofs in Euclid’s Elements are called propositions and proofs in GFEC are called theorems. Our proofs will use the structure outlined below.

* To Prove: The statement that needs to be proven. In Euclid, this is called the enunciation.
* The Given: The information given to begin the proof
* A Construction: A geometric figure drawn for the reader of the proof to be able to refer to in reference
* The Proof: A sequence of steps that can be justified by using truth statements such as definitions, etc.

Read the two proofs in GFEC on page 24. All the above parts of structure are used. Each statement in each proof is numbered on the left while the accompanying reason is laid out on the right. This format is called the “two column” proof and is the format we will be using in this class.