Proofs of the Pythagorean Theorem

We will study Euclid for two chapters - the first focused on geometry and the second focused on number theory. Euclid's name is worth knowing because of his work called the "Elements", where he attempts to construct all of the mathematics known at the time from basic assumptions he calls "common notions" and "postulates". By the time we are finished with this chapter, you should be able to state Euclid's Fifth Postulate and say something about why it was controversial.

Two important people who influenced Euclid's thinking are Eudoxus , most famous for his "method of exhaustion", and Aristotle who wrote on what proof in mathematics should be, and may have been the first to use the phrase "common notion".

Readings

First reading: Dunham Chapter 2

Second Reading: Proofs of the Pythagorean Theorem

In the second reading, you should read the introduction, try to get a feel for different strategies people use to prove this theorem, and then pick a few of these proofs to study. You do not need to know all of the proofs on this site! You should be able to give, in full detail, the proof from our textbook (which is also Proof #1 on the site) as well as two other proofs of your choice.

Questions

Question 1 *In the collection of Proofs #1 through #10, which is listed as discovered by President James Garfield?* $\boxed{5}$
given

Question 2 *Which of the following is NOT a category of proofs of the theorem mentioned in the remarks?*

Multiple Choice:

(a) *Proofs by contradiction.* ✓

(b) *Algebraic proofs.*

(c) *Geometric proofs.*

(d) *Trigonometric proofs.*