Euclid's Elements: Practical strategies

Introduction

- Supporting claims
- Iceberg
- Handy facts
- Copywork
- Memorization
- Post-Euclid

First work with propositions

- Divisions of the proposition
- If-then statements
- Presentations

When can I use this? (Geometry proof version)

Fights are good for solidifying understanding

Small group work for discovery

Constructions

Individual proofs

Assessments

- Mastery quizzes
- Two-Day quizzes
- Oral Assessments
- Right triangle quiz
- Final Exam

Connections

- Polya
- Calculus

VI.8 (if time)

Conclusion

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Euclid's Elements: Practical strategies

To two given straight lines to find a mean proportional. (proposition VI.13)

Let AB, BC be the two given straight lines;

thus it is required to find a mean proportional to AB, BC.

Let them be placed in a straight line, and let the semicircle ADC be described on AC; let BD be drawn from the point B at right angles to the straight line AC, and let AD, DC be joined.

Since the angle ADC is an angle in a semicircle, it is right. [III. 31]

And, since, in the right-angled triangle ADC, DB has been drawn from the right angle perpendicular to the base, therefore DB is a mean proportional between the segments of the base, AB, BC. [VI. 8, Por.]

Therefore to the two given straight lines AB, BC a mean proportional DB has been found. Q. E. F.

If in a circle a straight line through the centre bisect a straight line not through the centre, it also cuts it at right angles. And if it cut it at right angles, it also bisects it.

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using if-then statements

For each reason (proposition or theorem or definition):

In the lines BEFORE the given reason, write what must be true in order to use this as a reason. Some have many, and some have only one.

In the lines TO THE LEFT OF the given reason, write what can be stated because of it. Be sure to use a separate line for each, and list everything that can be stated. Some have only one.

There will be two options for the definitions. Use two separate tables.

Example #1: We have a rule that you must finish your homework in order to visit with your friends. We call it XV.3 and you want to use XV.3 today.

statements	reasons
All of my Geometry, Literature, and History homework is done.	
I have no homework due in my other classes.	
I can visit with my neighbor and her cat.	XV.3
I can go skateboarding with my best friend.	XV.3
My classmate can come over for dinner.	XV.3

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Example #1: We have a rule that you must finish your homework in order to visit with your friends. We call it XVS and you want to use XVS today.

statements	reasons
All of my Geometry, Literature, and History homework is done.	
I have no homework due in my other classes.	
I can visit with my neighbor and her cat.	XVS
I can go skateboarding with my best friend.	XVS
My classmates can come over for dinner.	XVS

[illegible]