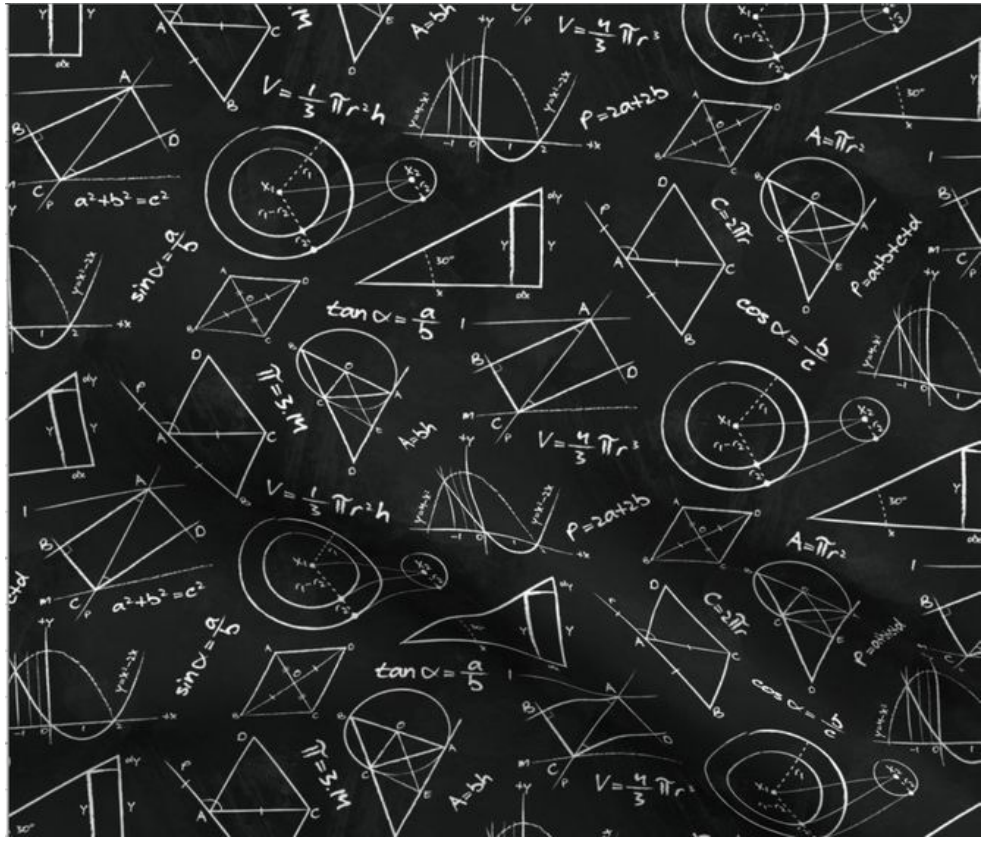
Tutorial 3 Euclid

What makes the modern science so unique?

GFN1000 In Dialogue with Nature

Content

- Axiomatic System
- Logical Reasoning
- Beauty and Reality
- Mathematics and Science
- Mathematics Education



Axiomatic System

- Choose one of the first 20 propositions that you think effectively exemplifies the axiomatic system of Euclidean geometry. Elaborate on its proof and explain how it demonstrates the characteristics of the axiomatic method. ①②③④
- Give examples of an axiomatic system beyond mathematics. ⑤

Logical Reasoning

- How do you understand the difference between Epicurean philosophers and Euclid (Text 11a, Para.9)? ②③
- Examine what Euclid's choice of tools, namely a straightedge and a collapsible compass, reveals about his approach and methodology. ④⑤
- If axioms cannot be proved or disproved, does this imply no absolute or universal truth exists in the world? ①

Beauty and Reality

- Why does Euclid try to rely on as few postulates as possible? ③④
- How do you understand the linkages between Euclidean geometry and Platonic philosophy? ⑤①
- In your opinion, should mathematicians prioritize the pursuit of aesthetic beauty or the practical utility of mathematics? ②

Mathematics and Science

- What are the implications of Euclidean geometry for modern science? ④
- How does non-Euclidean geometry reshape people's (or your) perspectives on space and the world? ⑤①
- What do you think are the differences between mathematics and scientific disciplines? ②③

Mathematics Education

- Topic: Mathematics should be a compulsory subject in the college entrance examination.
- Make arguments to defend your position and counter the opposing viewpoint.
  - Affirmative ①②
  - Negative ③④