Philosophy 405: Knowledge, Truth and Mathematics Hamilton College
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Reading Guide #1
Kline, "The Creation of Classical Greek Mathematics"
Kline, "The Greek Rationalization of Nature"

Chapter 3

1. In what way are mathematical objects abstractions?
2. How, according to the Pythagoreans, were numbers the ultimate components of real things?
3. What are triangular numbers? Why did they fascinate the Pythagoreans?
4. What is a gnomon? What did the Pythagoreans know about gnomons? What did they *not* know about gnomons?
5. What are incommensurable ratios? How did the Pythagoreans discover them? Why were they problematic for the Pythagorean?
6. Distinguish discrete from continuous quantities. How might space and time be discrete? How might they be continuous?
7. How do Zeno's paradoxes support Parmenidean metaphysics? How do they undermine Pythagorean metaphysics?
8. How did Aristotle reject Zeno's paradox of dichotomy?

Chapter 7

9. Why did the Greeks study mathematics? In the Alexandrian period, what were the divisions of the field of mathematics?
10. What is a prime substance? How did it support a rational view of nature?
11. How did mathematical study of music support the rational view of nature?
12. What is the counter-earth? Why did the Pythagoreans posit it?
13. How did the Ionian rationalization of nature differ from that of the Pythagoreans?
14. How was Plato a Pythagorean? How did he go further than the Pythagoreans regarding the status of mathematics?
15. How did Aristotle's view of mathematics differ from that of Plato and the Pythagoreans?
16. How did aesthetic principles influence Greek physics?