Presentations03 Ancient Greek Mathematics

		Topic	presenter	
1		Use the method I presented in class to show that the side and diagonal of the square are incommensurable. (The method I presented showing that the side and diagonal of the pentagon are incommensurable.) There is a picture hint in the notes on this lecture.		
2		Calculate the ratio of the side of a regular pentagon to the diagonal of the regular pentagon. Hint: look at my calculations in terms of n and m.		
3		Use the figurate square numbers to prove that the sum of the first n odd numbers is n^2.		
4		Look up Hippocrates of Chios and use his method to calculate the area of a lune.		
5		Use the Quadratrix of Hippias to trisect an angle. See https://en.wikipedia.org/wiki/Quadratrix_of_Hippias for a proof.		
6		Use the Quadratrix of Hippias to square the circle. (See the above link for this one too.)		
7		Alpha Centauri, the nearest star is about 4.3 light years away; the diameter of earth's orbit is about 180,000,000 miles. How far away would a dime need to be (flat side facing you) to subtend the same angle as the parallax angle for Alpha Centauri from opposite ends of earth's orbit.		
8		Prove that the fifth postulate of Euclid holds if and only if the sum of the angles of triangle is 180º.		
9		Pons Asinorum: what is it and work through the details.		
10		Prove the Exterior Angle Theorem.		
11		Show how Eratosthenes calculated the size of the earth.		
12		Use the spiral of Archimedes to trisect an angle.		
13		Select two problems from your textbook in the Greek Geometry section and solve them. Get my okay and confirmation regarding presenting the problems you select.		
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