

Foundations 11 Chapter 2 Project

A. Read the essay “On Beauty Bare: Euclid’s Plane Geometry” and answer the following questions: 20 marks

1. The essay raises, in the very first paragraph, an interesting question: “why would an artist claim that a mathematician has been the only one to really perceive beauty?”. Explain why this might be so. Do you agree with the artist who made this claim? Why or why not.
2. What is the *Elements*? When was it written? Who wrote it? Why is it so important?
3. How many books are in the *Elements*? What are these books about?
4. What do the letters Q.E.D. stand for? What does this phrase mean? When are they written in mathematics?
5. Euclid’s Fifth Postulate is much more confusing than the other Postulates. Explain what this Postulate means.
6. What does the text say is the “enduring importance of the *Elements*”? Explain with an example.
7. Which of Euclid’s theorems was known as the *pons asinorum*? Why is the theorem called that?
8. The author of this essay suggests that the “de-emphasis of Euclid’s logical structure in high school geometry is truly unfortunate”. Why does he think this? Do you agree with him? Why or why not?
9. The sketch mentions several different Greek mathematicians and philosophers: Euclid, Thales, Pythagoras, Plato, Aristotle, Eudoxus. Find out where and when each one lived.
10. Lewis Carroll, the author of *Alice’s Adventures in Wonderland*, also wrote a book called *Euclid and His Modern Rivals*. What is this book about, and why did Lewis Carroll write it?

B. Compass and Straight-Edge Construction 10 marks

We will be learning some constructions together in class. The second part of this project is for you to learn a *different* construction (*not* one of the ones we cover in class) and to show it to us (or, at least, to me). You must perform the construction yourself, while explaining it clearly, and *without* using any notes or drawings. Check out

<http://www.mathopenref.com/constructions.html> or

<http://www.mathsisfun.com/geometry/constructions.html>