Homework
due on Wednesday, September 29

Read carefully Chapter 1 of Hartshorne's book. Read Books 1-4 of the "Elements". Solve the following problems in Chapter 1:

Problem 2.24. Hint: Let O_1, O_2 be the centers of the circles, r_1, r_2 corresponding radii with $r_2 \geq r_1$. Prove that solution exists iff $O_1O_2 \geq r_2 - r_1$. Explain why it suffices to construct a right angled traingle O_1O_2D with hypotenuse O_1O_2 and $DO_2 = r_2 - r_1$. If $O_1O_2 \geq r_1 + r_2$ there is also a second solution. Explain how to construct it.

Problem 3.8. Hint: Consider the circle through A, D, B.

Problems 3.10, 3.11.

Problem 4.7.

Problem 5.5.

Your solutions should only use the results from books 1-4 of the Elements and Chapter 1 of the book, and you should carefully explain what propositions you are using.