Typically reading assignments expect only a superficial understanding of the material. They are intended to give you a first look at material we'll explore in more depth in class. Occasionally, however, you will be asked to thoroughly understand something from the reading which we will not go through in class.

Most of the readings are from Bonahon, some are from Schwartz and sometimes you are asked to read online materials. Answer the following questions and turn in on the due date. The questions are intended to help you focus on what you are expected to get out of the reading and to ensure you are prepared for class. Your answers need not be long, but they should be thoughtful.

1. READING

(1) The handout "Introduction to Metric Spaces" from the course webpage.

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(2) Bonahon: Preface; Sections 1.1 - 1.4

   (a) What does it mean to say that in euclidean space, a straight line is the shortest distance between two points?

   (b) Which of the terms in Section 1.3 are new to you? For the ones that aren't new, where did you first encounter them?

   (c) What are the main examples of isometries of $\mathbb{E}^2$ (i.e. $\mathbb{R}^2$ with the euclidean metric.)

   (d) How can we use complex numbers to describe an isometry of $\mathbb{E}^2$?

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(3) Schwartz: Sections 2.1 - 2.4

   (a) Are Schwartz's definitions and notation for metric spaces, open sets, closed sets, etc. the same as Bonahon's? If not, how do they differ?

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(4) Watch the TED talk on crocheting hyperbolic planes. (It is 16 minutes 43 sec. long) We'll talk about this later.

   (a) Summarize the main point of the talk

   (b) List some ways hyperbolic geometry isn't just some arcane, useless invention but is actually connected to the natural world.

   (c) Guess as to some simplifications which were made. Do you think those simplifications helped or hindered the speaker's point?

   (d) React to the talk and discuss your reaction to it - was it inspiring? irritating? enjoyable? debatable? Why?