MA 314 Homework 8: Do spherical cows have Moo-bius transformations?

This homework is intended to be lighter than usual. The goal is to get you used to working with surfaces.

1. READING

Read the following sections on hyperbolic geometry:

- Bonahon: Sections 2.3 - 2.5 (you do not have to work through all the calculations)

- Schwartz: Section 10.1 and 10.6 and 10.7

2. MORTAR

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3. BRICKS

(1) Do Exercise 2 on page 116 of Schwartz (only people who have had analysis or who are up for a challege need to prove the statement about continuity)

(2) Do Exercise 4 on page 122 of Schwartz

(3) Given points (x_0, y_0) and (x_1, y_1) in $\mathbb{H}^2$, work out the formula for the hyperbolic distance between them. You may use any facts about hyperbolic geodesics that you like. You might like to use Bonahon's exercise 2.2 for a hint.