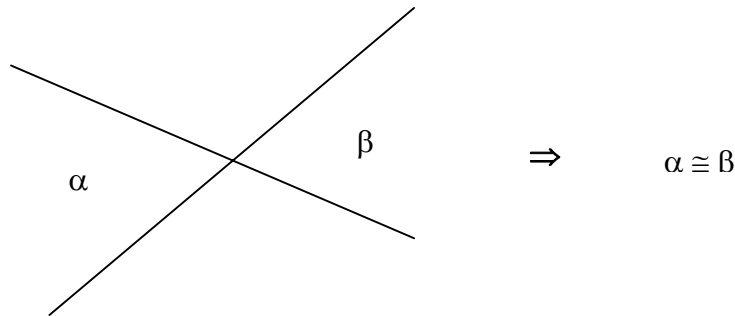


For next week (February 5)

- Read Chapter 3
- Begin to make your model of a hyperbolic plane (see appendix B)
- Final writeup of assignment 1: When do you call a line straight?
- Looking ahead – quiz 1 will be February 19 (tentatively)
- Think about these two problems:

### Problem 3.2 Vertical Angle Theorem (VAT)?<sup>1</sup>



VAT.

Prove: A pair of opposite angles formed by two intersecting straight lines are congruent [Note: Angles such as  $\alpha$  and  $\beta$  are called **vertical angles**.]

We do not have in mind a formal two-column proof as used in high school geometry. Mathematicians in actual practice usually use a proof to mean a discussion sufficient to convince any reasonable skeptic. [Hint: Show how you would “move”  $\alpha$  to make it coincide with  $\beta$ . What symmetry properties of straight lines are you using?]

*Does your proof work on a sphere?*

### Problem 3.1 What is an Angle?

Give some possible definitions of the term “Angle.” Do all of these definitions apply to both the plane and the sphere? What are the advantages and disadvantages of each?

What does it mean for two angles to be congruent? How can we check?

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<sup>1</sup> Page 39, in your textbook.