MATH 348 Reading Questions

Sections 5.2 and 5.3

NAME _____

Read Sections 5.2–5.3 in the text and answer the following questions. This sheet will be checked for completeness at the beginning of the next class.

1. How is a *disjoint union* different from just a *union*?

2. Why is $\mathbb{R} - \{0\}$ homeomorphic to $\mathbb{R} \amalg \mathbb{R}$?

3. Is a disjoint union ever a connected space? Why or why not?

4. How does the *Cartesian product* relate to the *product topology*?

5. How is a cylinder a product of two spaces?

6. Under what conditions is a direct product $S \times T$ Hausdorff? ...connected? ...compact?