1. Show that if $A \ast C \ast D$ and $A \ast B \ast C$, then $A \ast B \ast D$.

2. Let $\overrightarrow{AB}$ be a ray and let $C$ be a point on it distinct from $A$ and $B$. Prove that $\overrightarrow{AB} = \overrightarrow{AC}$.

   Hint: For any two sets $T$ and $S$, to prove $T = S$, show that $S \subseteq T$ and $T \subseteq S$. Another option is to use problem 5.7.

3. Problem 5.19 (a, b)

4. Problem 5.19 (c, d)

5. Problem 5.23. Note: Do not use Pasch’s Axiom.

6. Problem 5.29

7. Problem 5.30

8. Let $\angle ABC$ be an angle. Prove that $\text{interior } \angle ABC \neq \emptyset$ iff $\mu(\angle ABC) > 0$.

9. Problem 5.24

10. Problem 5.26