Set Theory
Quiz 6

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Let λ and κ be infinite cardinal numbers. Explain why $\lambda \cdot \kappa = \kappa \cdot \lambda$.

Choose sets A, B with $|A| = \lambda$ and $|B| = \kappa$. Then $\lambda \cdot \kappa = |A \times B|$ and $\kappa \cdot \lambda = |B \times A|$. Since $f : A \times B \to B \times A : (a, b) \mapsto (b, a)$ is a bijection, we obtain the middle inequality in:

$$\lambda \cdot \kappa = |A \times B| = |B \times A| = \kappa \cdot \lambda.$$