

**Theorem 3.18.** *Let  $X, Y$ , and  $Z$  be sets. Then  $|(X \times Y) \times Z| = |X \times (Y \times Z)|$ .*

**Problem 3.19.** *Suppose  $f$  is a one-to-one and onto function from  $\mathbb{N} \rightarrow \mathbb{Z}$ . Prove that the function  $g$  from  $\mathbb{N} \times \mathbb{N} \rightarrow \mathbb{N} \times \mathbb{Z}$  defined by  $g : (m, n) \mapsto (m, f(n))$  is one-to-one and onto.*