1. Let a and b be integers. Let A = and let . Suppose . because . Since and , then . Therefore . On the other hand, suppose . That means that . We also know that , so also. Therefore, by definition of a subset, .

4. ⊆ Let . Then there is some for which . Hence there is some for which ; namely, . Thus and, by definition of a subset, . ⊇ Let . Then there is some for which . Hence there is some for which ; namely, . Thus and, by definition of a subset, . Since and , .