

Exercises

Exercise 1. Consider a set $A = \{2, 4, 5, 11\}$ ordered by \leq . Is \leq a total order or a partial order on A ? What are the minimal/least/maximal/greatest elements? Let $A \subset \mathbb{N}$. What are the bounds?

Exercise 2. Consider a set $A = \{2, 4, 5, 11\}$ ordered by divisibility $|$. Is $|$ a total order or a partial order on A ? What are the minimal/least/maximal/greatest elements? Let $A \subset \mathbb{N}$. What are the bounds?

Exercise 3. Draw the Hasse diagram of the powerset of $\{a, b, c\}$ ordered by inclusion \subseteq . Is the relation \subseteq a total order or a partial order on $\{a, b, c\}$?

Exercise 4. Draw the Hasse diagram of the set $A = \{1, 2, 3, 4, 5, 6\}$ ordered by divisibility $|$. Is $|$ a total order to a partial order on A ?

Exercise 5. Consider the set $\mathbb{N} \subset \mathbb{Z}$ ordered by \leq . Is there a minimal/maximal/least/greatest element? Is the set \mathbb{N} bounded? What are the bounds?

Exercise 6. Consider a subset $[a, b] \subset \mathbb{N}$ ordered by \leq . Is there a minimal/maximal/least/greatest element? Is the set bounded? What are the bounds?

Exercise 7. Consider the set \mathbb{Z} ordered by \leq . What are the minimal/maximal/least/greatest elements? What are the bounds?

Exercise 8. Consider the subset \mathbb{Z}^+ of positive integers. What are the minimal/maximal/least/greatest elements? What are the bounds?

Exercise 9. Consider the subset $(\sqrt{2}, 5] \subset \mathbb{Q}$. What are the minimal/maximal/least/greatest elements? What are the bounds?

Exercise 10. Consider the set \mathbb{C} . What are the minimal/maximal/least/greatest elements? What are the bounds?

Exercise 11. Show that any real number $m \in \mathbb{R}$ is an upper and lower bound for an empty set \emptyset .