

## Presentation Assignment 2

Let  $S = (-\infty, -2] \cup (0, 1) \cup (1, 2) \cup [4, 7]$  be an ordered set with the order relation inherited from  $\mathbf{R}$ . Also, let  $A = (0, 1)$ ,  $B = (1, 2)$ , and  $C = [4, 7]$ .

1. Which of the sets  $A$ ,  $B$ , and  $C$  are (a) bounded above (in  $S$ ), (b) bounded below (in  $S$ )?
2. Which of the sets  $A$ ,  $B$ , and  $C$  have (a) greatest lower bound, (b) least upper bound, (c) least lower bound, (d) greatest upper bound, (e) minimal element, (f) maximal element? In each case, what is this bound or why does it not exist?
3. Does  $S$  have the least-upper-bound property? How about the greatest-lower-bound property?

Be able to justify your answers.