

Four of these problems will be graded, with each problem worth 5 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must write up your own final submission without reference to any sources other than the textbook and instructor.

1. Prove Theorem 4.3.3.
2. Do Exercise 4.3.3.
3. Do Exercise 4.3.5.
4. Do Exercise 4.3.9.
5. Do Exercise 4.3.11.
6. Do Exercise 4.3.21.
7. Give an example of an open cover of $(0,3)$ that has no finite subcover.
8. Prove that any open cover of $[0,3]$ does have a finite subcover.