

Math 226A: Problem Set 2

due Friday, October 25

1. Give examples of Riemannian manifolds having:
 - (a) positive scalar curvature but not positive Ricci curvature;
 - (b) positive Ricci curvature but not positive sectional curvature;
 - (c) positive sectional curvature but not positive curvature operator.
2. Petersen, Chapter 2, Exercise 16 on p. 59.
3. Petersen, Chapter 2, Exercise 18 parts (d), (e), (f) on p. 60. (You can assume the first three parts, which are proved in Proposition 12 on p.79. I suggest you read that proof.)
4. Petersen, Chapter 2, Exercise 28 on p. 62.
5. Petersen, Chapter 2, Exercise 31 on p. 62.
6. Petersen, Chapter 3, Exercise 11 parts (a), (b), (c), (d) on p. 92.
7. Petersen, Chapter 4, Exercise 3 on p. 108.
8. Petersen, Chapter 4, Exercise 4 on p. 108.