

- 1 Give examples of Riemannian manifolds having:
 - 1.1 positive scalar curvature but not positive Ricci curvature;
 - 1.2 positive Ricci curvature but not positive sectional curvature;
 - 1.3 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.