Assignment #6

1. In what sense is von Neumann entropy a measure of the mixedness of a quantum state?

2. How does von Neumann entropy relate to thermodynamic entropy?

3. What does black hole entropy *explicitly* measure (as given by the Bekenstein-Hawking formula)?

4. Why is the fact that a black hole has negative heat capacity a problem in demonstrating that a black hole can undergo a reversible thermodynamic process?