Date:
Name 1:
Name 2:

Answer the following questions in both relational algebra and SQL. The SQL must match the Relational Algebra.

Assume the following schema:

Classes(class, type, country, numGuns, bore, displacement)
Ships(ship, class, launched)
Battles(battle, bdate)
Outcomes(ship, battle, result)

a) For every ship that was sunk, lits its country. Result should have only one column.

b) For every class, list other classes that have the same number of guns. The result should have two attributes: the class, and the class of the other. If, for any class, two or ore other classes have the same number of guns, then there must be two or more tuples in the result, one for each other class. For example, if C1 has the same number of guns as C2 and C3, the result should contain (C1,C2) and (C2, C3). Note that it should also contain (C2, C1), (C2,C3), (C3,C1) and (C3,C2).

d) List at least 5 non trivial canonical, non trivial functional dependencies that hold in any of these relations.