Discrete Mathematics Quiz 1

Name: _____

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1) Which of the following is a contradiction?
*a) $p \wedge \neg p$
b) $p \wedge \neg r$
c) $p \wedge \neg q$
d) all of the above

2) Translate ($q \rightarrow r$) into English:
a) q implies r
b) if q, then r
c) r is sufficient for q
*d) all of the above

3) Let p = "It is raining", q = "The roads are wet" and r = "Travel is safe". Please translate "It is raining and the roads are wet therefore travel is not safe" into symbolic logic:
a) $p \wedge q \rightarrow r$
*b) $p \wedge q \rightarrow \neg r$
c) $p \wedge q \wedge r$
d) none of the above

4) Which of the following is a tautology?
*a) $p \wedge q \rightarrow q$
b) $p \wedge \neg r \rightarrow r$
c) $p \wedge \neg q \rightarrow \neg p$
d) all of the above

5) Let p = "I love this course", q = "My recitation lecturers are great", and r = "I will say anything to get an A". Translate "I love this course and my recitation lecturers are great does not imply I will say anything to get an A"
a) $(\neg r \wedge (q \rightarrow r)) \rightarrow \neg q$
*b) $\neg((p \wedge q) \rightarrow r)$
c) $((p \wedge q) \rightarrow \neg r)$
d) none of the above