

CS221 Problem Workout

Nov 11

1) [CA session] Problem 1

Compute the conjunctive normal form (CNF) of the following two formulas and write every step of your computation:

(a) $\neg P \rightarrow \neg\neg(Q \vee (R \wedge \neg S))$

(b) $(P \rightarrow (Q \vee (R \wedge S))) \wedge (R \vee (S \rightarrow Q))$

3) [Breakouts] Problem 3

Translate the following English sentences into first-order logic formulas:

- (a) Every student takes at least one course.
- (b) Every student who takes Analysis also takes Geometry.
- (c) No student failed Chemistry but at least one student failed History.