Propositional and Predicate Logic – First Homework

The deadline for the homework is November 10, 2017 at 23:55 (11:55 pm). You can either hand me the solution on paper (preferably after the lecture on Nov. 9), or send it via e-mail to `Martin.Pilat@mff.cuni.cz` (a scan/photo of your handwriting is OK).

The points obtained for this homework count towards the points required to obtain the credit for the seminar.

1. Transform the formula $(((p \to \neg q) \to \neg r) \to \neg p)$ into the conjunctive normal form and into the disjunctive normal form. [**0.5 points**]

2. Prove the formula $(p \vee (q \wedge r)) \to ((p \vee q) \wedge (p \vee r))$ using the tableau method. [**0.5 points**]

3. Let $T = \{p \vee \neg q, s \to q, r \to \neg(p \vee q)\}$ be a theory over $\mathbb{P} = \{p, q, r, s\}$. Count the number of non-equivalent formulas φ, such that $T \nvdash \varphi$. [**0.5 points**]