CS 270 - Deduction Homework

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This homework is worth 100 points.

Complete each of the following proofs using **Natural Deduction Proof Editor** from the Open Logic Project.

`http://proofs.openlogicproject.org`

To submit the assignment

1. Create a word document *`drexeluserid`*`_hw6.doc`.
2. Complete each proof using the website and take a screenshot of the proof. You may only use the Basic Rules of Deduction.
3. Copy-Paste each screenshot into the Word Document. Make sure that your screenshot includes the part that (hopefully) says

   ☺ Congratulations! This proof is correct.

   although if you can't quite get your answer to work out, then instead inlude in your screenshot the list of problems generated by the checker so that you can earn some partial credit:

   ☹ Sorry there were errors.

   Line 2: Is not a proper application of the rule ∨I (for the line(s) cited).

   Line 3: Cites itself.

   Line 4: Cites too many line numbers for the rule ∧E.

4. Export the Word document as a *single* PDF and submit *`drexeluserid`*`_hw6.pdf`.to `https://learning.drexel.edu`.

Question 1 : 10 points

$A \wedge B \therefore B \wedge A$

Question 2 : 10 points

$A \vee B \therefore B \vee A$

Question 3 : 10 points

$A \vee (B \wedge C) \therefore (A \vee B) \wedge (A \vee C)$

Question 4 : 10 points

$(A \wedge B) \vee (A \wedge C) \therefore A \wedge (B \vee C)$

Question 5 : 5 points

$\neg\neg A \therefore A$

Question 6 : 5 points

$A \therefore \neg\neg A$

Question 7 : 20 points

$A \implies B \therefore \neg A \vee B$

Question 8 : 20 points

$\neg A \vee B \therefore A \implies B$

Question 9 : 10 points

$\neg(A \wedge B) \therefore \neg A \vee \neg B$