Homework 1

1. Give an informal proof of $\phi \vee \psi \rightarrow \neg(\neg\phi \wedge \neg\psi)$ and an explanation of its validity based on the BHK-interpretation.

2. Some of the schemes below are intuitionistically valid. Give informal proofs of the intuitionistically valid schemes and explain shortly why you think the others are not valid.

- $(\phi \rightarrow \chi) \wedge (\psi \rightarrow \chi) \rightarrow (\phi \vee \psi \rightarrow \chi)$

- $\neg(\neg\phi \wedge \neg\psi) \rightarrow \phi \vee \psi$

- $\neg(\neg\phi \vee \neg\psi) \rightarrow \phi \wedge \psi$

- $\neg\neg(\neg\neg\phi \rightarrow \phi)$

- $\neg\neg(\phi \wedge \psi) \rightarrow \neg\neg\phi \wedge \neg\neg\psi$