

Provide Natural deduction proofs of the following formulas
 We indicate whether the proof is constructive or classical
 as well as the difficulty

① Constructive - moderate

$$((\neg\neg A \vee B) \rightarrow (\neg B \vee C)) \rightarrow (\neg B \rightarrow C) \rightarrow A \rightarrow C$$

② Classical - moderate

$$(\neg A \rightarrow B \vee C) \rightarrow \neg B \rightarrow \neg C \rightarrow A$$

③ Constructive - easy

$$(A \wedge B \rightarrow \neg C) \rightarrow C \rightarrow A \rightarrow \neg B$$

④ Classical - easy

$$(A \wedge \neg B \rightarrow \neg C) \rightarrow C \rightarrow A \rightarrow B$$

⑤ Constructive - hard

$$(A \rightarrow B \vee C) \rightarrow (B \rightarrow D) \rightarrow (C \rightarrow B \vee D) \rightarrow \neg D \rightarrow \neg A$$

⑥ Constructive - moderate

$$(D \rightarrow A \vee C) \rightarrow (A \wedge B \rightarrow C) \rightarrow D \wedge B \rightarrow C$$

⑦ Constructive - moderate

$$(C \rightarrow B \vee A) \rightarrow (B \rightarrow A) \rightarrow (C \rightarrow A) \vee C$$

⑧ Classical - moderate

$$(C \rightarrow B) \rightarrow (B \rightarrow A) \rightarrow (\neg C \rightarrow A) \rightarrow A$$

⑨ Classical - moderate

$$(C \rightarrow A) \rightarrow (A \rightarrow B) \rightarrow (\neg B \rightarrow C) \rightarrow B$$