

Задания по теме «Исчисление высказываний»

$$\boxed{\Phi \vdash \Phi} \quad 1. \frac{\Gamma \vdash \Phi; \quad \Gamma \vdash \Psi}{\Gamma \vdash \Phi \wedge \Psi}; \quad 2. \frac{\Gamma \vdash \Phi \wedge \Psi}{\Gamma \vdash \Phi}; \quad 3. \frac{\Gamma \vdash \Phi \wedge \Psi}{\Gamma \vdash \Psi}; \quad 4. \frac{\Gamma \vdash \Phi}{\Gamma \vdash \Phi \vee \Psi}; \quad 5. \frac{\Gamma \vdash \Psi}{\Gamma \vdash \Phi \vee \Psi};$$

$$6. \frac{\Gamma, \Phi \vdash \Psi, \quad \Gamma, \Omega \vdash \Psi, \quad \Gamma \vdash \Phi \vee \Omega}{\Gamma \vdash \Psi}; \quad 7. \frac{\Gamma, \Phi \vdash \Psi}{\Gamma \vdash \Phi \rightarrow \Psi}; \quad 8. \frac{\Gamma \vdash \Phi, \quad \Gamma \vdash \Phi \rightarrow \Psi}{\Gamma \vdash \Psi};$$

$$9. \frac{\Gamma, \neg \Phi \vdash}{\Gamma \vdash \Phi}; \quad 10. \frac{\Gamma \vdash \Phi, \quad \Gamma \vdash \neg \Phi}{\Gamma \vdash}; \quad 11. \frac{\Gamma, \Phi, \Psi, \Gamma_1 \vdash \Omega}{\Gamma, \Psi, \Phi, \Gamma_1 \vdash \Omega}; \quad 12. \frac{\Gamma \vdash \Phi}{\Gamma, \Psi \vdash \Phi}.$$

Проверьте истинность и постройте дерево доказательства:

$$1) \quad P \wedge Q \vdash P \vee Q$$

$$2) \quad \neg Q, P \rightarrow Q \vdash \neg P$$

$$3) \quad \neg P \vee Q \vdash P \rightarrow Q$$

$$4) \quad P \vee Q, P \rightarrow Q \vdash Q$$