

**MA 430, FIFTH HOMEWORK SET (PART II), DUE
WEDNESDAY, OCTOBER 7TH.**

1. EXERCISE

Test each of the following arguments for validity using the tableau method.

(1)

$$\frac{\begin{array}{l} \neg P \leftrightarrow (R \vee S) \\ S \rightarrow (Q \vee R) \\ (Q \wedge P) \rightarrow S \end{array}}{\neg P}$$

(2)

$$\frac{\begin{array}{l} \neg R \rightarrow (P \vee \neg Q) \\ \neg(R \leftrightarrow (P \wedge \neg Q)) \\ (S \vee P) \leftrightarrow \neg(\neg R \vee Q) \end{array}}{Q \rightarrow (S \vee P)}$$

2. EXERCISE

Use the tableau method to decide if the following set of formulas satisfiable. If yes, define a satisfying valuation.

$$\begin{array}{l} R \leftrightarrow (R \vee S) \\ S \rightarrow (Q \vee \neg R) \\ (Q \wedge P) \rightarrow \neg S \\ P \rightarrow R \end{array}$$