

Determine by means of a reverse truth-table whether the following symbolic arguments are *valid*:

$$(\sim(\sim P \vee R) \rightarrow Q) \leftrightarrow S \quad . \quad \sim[(R \wedge S) \leftrightarrow P] \quad \therefore (P \leftrightarrow S) \vee (R \rightarrow \sim Q \wedge \sim P)$$

$$P \wedge (\sim Q \vee R \leftrightarrow (S \rightarrow W)) \quad . \quad \sim[\sim S \rightarrow (Q \leftrightarrow \sim P)] \quad \therefore W \vee (R \wedge \sim S)$$

Note: I recommend writing these problems out on a separate piece of paper, spacing all the symbols out neatly and clearly.