

### 2.21.1. Indirect Test of Validity: Simple Problems

For each of the following arguments, use the **indirect test** to show whether or not the argument is **valid**.

1.  $\sim P \therefore \sim(P \wedge Q)$

*(Break down “ $\sim P$ ” first.)*

2.  $(P \wedge \sim Q) \cdot \sim R \therefore (Q \vee R)$

3.  $\sim(P \vee Q) \cdot (R \wedge \sim S) \therefore (Q \vee R)$

4.  $(R \wedge \sim S) \therefore (Q \vee R)$

5.  $\sim(P \wedge Q) \cdot P \therefore \sim Q$

*(Break down “ $\sim Q$ ” first.)*

6.  $\sim(P \wedge Q) \cdot \sim Q \therefore P$

*(Break down “ $\sim Q$ ” first.)*