

Homework 1.1 (Solution)

4. common form: If p then q .
If q then r .
Therefore, if p then r .

b. x equals 0; the guard condition for the while loop is false; program execution moves to the next instruction following the loop

$$\begin{aligned} 45. \quad \sim(p \vee \sim q) \vee (\sim p \wedge \sim q) &\equiv (\sim p \wedge q) \vee (\sim p \wedge \sim q) && \text{by De Morgan's law and} \\ &&& \text{the double negative law} \\ &\equiv \sim p \wedge (q \vee \sim q) && \text{by the distributive law} \\ &\equiv \sim p \wedge t && \text{by the negation law for } \vee \\ &\equiv \sim p && \text{by the identity law for } \wedge \end{aligned}$$