

4.9.1. Expressive Power Problems

1. Show that the language $\{\rightarrow\}$ can build a sentence with the same truth table as $“(P \vee Q)”$.
2. Show that the language $\{\vee, \leftrightarrow\}$ can build a sentence with the same truth table as $“(P \wedge Q)”$.
3. Show that the language $\{\rightarrow, \leftrightarrow\}$ can build a sentence with the same truth table as $“(P \wedge Q)”$.
(Hint: use the answers to Problems 1 and 2)
4. Show that the language $\{\wedge, \rightarrow\}$ can build a sentence with the same truth table as $“(P \leftrightarrow Q)”$.
5. Show that the language $\{\wedge, \leftrightarrow\}$ can build a sentence with the same truth table as $“(P \rightarrow Q)”$.

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