

Clausal Form Exercises

For each of the following sentences, say which set of clauses is the correct clausal form.

1. $p \wedge q \Rightarrow r \vee s$. $\{p, q, r, s\}$
 - . $\{\neg p, \neg q, r, s\}$ ✓
 - . $\{\neg p, \neg q, r\}, \{\neg p, \neg q, s\}$
 - . $\{\neg p, r, s\}, \{\neg q, r, s\}$
 - . $\{\neg p\}, \{\neg q\}, \{r\}, \{s\}$
2. $p \vee q \Rightarrow r \vee s$. $\{p, q, r, s\}$
 - . $\{\neg p, \neg q, r, s\}$
 - . $\{\neg p, \neg q, r\}, \{\neg p, \neg q, s\}$
 - . $\{\neg p, r, s\}, \{\neg q, r, s\}$ ✓
 - . $\{\neg p\}, \{\neg q\}, \{r\}, \{s\}$
3. $\neg(p \vee q \vee r)$
 - . $\{\neg p, \neg q, \neg r\}$
 - . $\{\neg p\}, \{\neg q\}, \{\neg r\}$ ✓
4. $\neg(p \wedge q \wedge r)$
 - . $\{\neg p, \neg q, \neg r\}$ ✓
 - . $\{\neg p\}, \{\neg q\}, \{\neg r\}$
5. $p \wedge q \Leftrightarrow r$
 - . $\{p, q\}, \{r\}$
 - . $\{\neg p, \neg q\}, \{r\}$
 - . $\{\neg p, \neg q, r\}, \{\neg r, p\}, \{\neg r, q\}$ ✓
 - . $\{\neg p, r\}, \{\neg q, r\}, \{p, q, \neg r\}$
 - . $\{p\}, \{q\}, \{r\}$