Ex.1

$$(((P \lor Q) \Rightarrow R) \land (R \lor (P \land \neg Q))) \land \neg R$$

Translate the implication to an or-clause:

$$((\neg(P \lor Q) \lor R) \land (R \lor (P \land \neg Q)))\neg R$$

De Morgan:

$$(((\neg P \land \neg Q) \lor R) \land (R \lor (P \land \neg Q))) \land \neg R$$

Remove contradicting statements $((\neg P \land \neg Q)$ and $(P \land \neg Q)$ can never be true at the same time)):

$$(R \land R) \land \neg R$$

A literal AND the same literal is the same as just writing the literal:

$$R \land \neg R$$

We are ending up with a contradiction.