Exercise 3.1:
Use CDCL to decide satisfiability of the following clause set.

\begin{align*}
(1) & \neg P_1 \lor \neg P_2 \\
(2) & P_3 \lor P_2 \lor P_4 \\
(3) & P_2 \lor \neg P_4 \\
(4) & \neg P_3 \lor P_2 \\
(5) & P_1 \lor P_2 \lor P_4
\end{align*}

Exercise 3.2:
Use CDCL to decide satisfiability of the following clause set.

\begin{align*}
(1) & P_1 \lor P_2 \lor P_3 \lor P_4 \\
(2) & \neg P_1 \lor \neg P_2 \\
(3) & \neg P_2 \lor \neg P_3 \\
(4) & \neg P_1 \lor \neg P_4 \\
(5) & \neg P_4 \lor P_1 \\
(6) & \neg P_4 \lor P_3 \\
(7) & \neg P_3 \lor P_2 \\
(8) & \neg P_2 \lor P_3 \\
(9) & \neg P_1 \lor P_4 \lor P_3
\end{align*}

Exercise* 3.3:
Prove that any reasonable CDCL run without rules Restart and Forget learns at most $2^n$ different clauses where $n$ is the number of propositional variables.

It is not encouraged to prepare joint solutions, because we do not support joint exams.