

1. Write your name below:

2. (a) Reduce the following instance of 3-CNF-SAT to an instance of CLIQUE by using the reduction described in the textbook (pp. 1081–1084).
(b) Solve the CLIQUE instance using any method, but explain your answer.
(c) Use the above solution to solve the 3-CNF-SAT instance, explaining your answer.

$$(x_1 \vee \neg x_2 \vee x_3) \wedge (x_1 \vee \neg x_3 \vee x_4) \wedge (\neg x_1 \vee \neg x_3 \vee \neg x_4) \wedge (x_1 \vee x_2 \vee x_4)$$

3. Repeat all parts of Question 2 replacing CLIQUE with SUBSET-SUM, and using the textbook's reduction of pp. 1092-1095.

$$(x_1 \vee \neg x_2 \vee x_3) \wedge (x_1 \vee \neg x_3 \vee x_4) \wedge (\neg x_1 \vee \neg x_3 \vee \neg x_4) \wedge (x_1 \vee x_2 \vee x_4)$$