

# Note on HW1

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For problem 1 – 4, you are able to earn 10 points per each problem. Problem 5 deserves 5 extra points. The extra points you get from the problem 5 may compensate your missing points in problem 1 – 4. You can earn up to 40 points from this homework.

## Problem 2

Many students chained the premises and their contrapositives and showed that  $C \rightarrow D$  is valid. Then, they concluded that  $C \rightarrow \neg D$  is not valid.

This argument, however, is not sound in general. Therefore, you cannot rely on this argument. As a counter-example, consider the case where we have  $\neg C$  as a premise. We can show that both of  $C \rightarrow D$  and  $C \rightarrow \neg D$  are valid at the same time.