

- ▶. *Evaluation of proofs* exercises will appear frequently in our textbook. Below are the instructions which we will follow. The instructions are a variation of the book's instructions for such exercises.
- ▶. For each Evaluation of Proof exercise,
 - (1) first change the textbook's word *proposition* to the word *conjecture*
 - (2) next change the textbook's word *proof* to *proposed proof*.

These minor changes will make the exercises make much more sense.

- ▶. Each exercise has a conjecture (which is true or false, but not both) along with a proposed proof of, or counterexample to, the conjecture.
- ▶. **Recall** it is not possible to provide a proof a false conjecture; however, it is possible to provide a counterexample to a conjecture, which will show that the conjecture is false.

1st. **The first line of your solution** should be one of the below 8 choices.

- | | |
|-------------------|-------------------|
| • Evaluation: F1. | • Evaluation: T1. |
| • Evaluation: F2. | • Evaluation: T2. |
| • Evaluation: F3. | • Evaluation: T3. |
| • Evaluation: F4. | • Evaluation: T4. |

You should determine your evaluation using the below rubric in the next step.

2nd. **For the remainder of your solution**, follow the instructions corresponding to the evaluation that you gave in your first line.

F1. The conjecture is false and the proposed proof is (of course) incorrect.

In this situation, you are to determine (and specifically state) the error in the proposed proof and then provide a counterexample showing that the conjecture is false.

F2. The conjecture is false and the proposed counterexample is not really a counterexample.

In this situation, you are to specifically state why the proposed counterexample is not really a counterexample and then provide a counterexample that shows the conjecture is false.

F3. The conjecture is false and the counterexample is indeed a counterexample but is not well written.

In this situation, revise the counterexample into a well-written counterexample.

F4. The conjecture is false and the counterexample is indeed a well written counterexample.

In this situation, you simply indicate that this is an excellent well-written counterexample. ☺

T1. The conjecture is true and the proposed counterexample is (of course) incorrect.

In this situation, you are to specifically state why the counterexample is not a counterexample. Then provide a well-written proof.

T2. The conjecture is true and the proposed proof is incorrect.

In this situation, you are to determine (and specifically state) the error in the proposed proof and then provide a well-written proof.

T3. The conjecture is true and the proposed proof is correct; however, the proof is not well written.

In this situation, you must then revise the given proof by rewriting it according to the guidelines presented in class.

T4. The conjecture is true, the proposed proof is correct, and the proof is well written.

In this situation, you simply indicate that this is an excellent well-written proof. ☺