

Assignment #2 (Weight is double, graded out of 20 pts.)

Important Note: Do not use the printed version of the textbook. Use the e-version of 7th edition.

Part 1: Section 1.6 (Rules of Inference): 10, 14, 16, 18, 20; **If a question has multiple parts, do part a only.**

Part 2:

1. Use *a direct proof* to prove: **The product of any two odd integers is an odd integer.**
2. Use *an indirect proof* to prove: **For all integers x , if $x^2 - 6x$ is even, then x is even.**
3. Prove or disprove that **if a and b are rational numbers, then a^b is rational.**
4. When asked to prove that **“the sum of any irrational number and any rational number is irrational”**, a student began, “Suppose not. That is, suppose the sum of any irrational number and any rational number is rational.”

What is wrong with starting the proof in this way? State the correct way to start the proof.

Submission: This is due in class on Tue. Sep. 29, 2015. It is better to submit a typed printed paper (i.e., printed from MS Word)