

Practice Homework #1

⇒ (points) ⇐

“Due” Date: September 19/20, 2023, in SI Meetings

Directions

Because we have an exam in a week, there’s not enough time to have a real homework graded and returned before the exam. However, we’re confident that you will benefit from working some problems on recently-introduced material that will be covered by the exam, even if we do not collect your answers. Thus, we offer this *uncollected, ungraded* homework. We recommend that you treat it as you would a regular homework: Write complete answers to all of the questions, do your own work, and show that work, when appropriate. The TAs will entertain questions on these problems during SI sessions (and in office hours, of course).

Incentive: As encouragement to work through these problems, I’ll select one of them to be on the exam. Should be easy points . . . if you do this ‘homework!’

Section 1.3 — Propositional Equivalences:

1. Section 1.3, 7(a,c)
2. Section 1.3, 11(b,e). In addition to using truth tables, also use sequences of logical equivalences to show that the expressions are tautologies.
3. Section 1.3, 19
4. Section 1.3, 27. Show that they are equivalent using a sequence of logical equivalences.
5. Section 1.3, 39(a,c). ‘Dual’ is defined above Exercise 38.

Section 1.4 — Predicates and Quantifiers:

6. Section 1.4, 5(b,c)
7. Section 1.4, 7(a,d)
8. Section 1.4, 9(b,d)
9. Section 1.4, 11(c,e)
10. Section 1.4, 13(b,d)
11. Section 1.4, 17(a,b,c)
12. Section 1.4, 23(b,c). Yes, the directions differ from our “one step above Thing” class rule governing domains. Follow the question’s directions.
13. Section 1.4, 25(a,b,e)
14. Section 1.4, 29(a,b)
15. Section 1.4, 35(d,e)

Section 1.5 — Nested Quantifiers:

16. Section 1.5, 3(b,c,f)
17. Section 1.5, 9(a,b,c)
18. Section 1.5, 15(a,b,c,d)
19. Section 1.5, 25(a,d)