

Homework 2

Math 105

Due June 30th at 11:59 PM

Textbook Exercises

1.4: 1, 5, 6, 8, 12, 15, 29, 37, 47

1.5: 1, 3, 5, 11, 13, 15

1.6: 8, 9, 10, 17, 19, 21

2.1: 1, 3, 5, 7, 11, 17, 18, 19, 20, 21, 22

Exercise 1: Consider the following argument:

1. My chair is not made of wood.
2. Any object that is blue is a desk.
3. All desks are made of wood.

Conclusion: My chair is not blue.

Prove this using the techniques from 1.6 (i.e. not by constructing a massive truth table).

Exercise 2: Let U be the 52-element set that consists of the standard playing cards. Let A be the set of clubs and B the set of nines. Specifically, if we label the cards $1C, 2C, 3C, \dots, 10C, JC, QC, KC, AC$ for the clubs and similarly for the other three suits, then $A = \{1C, 2C, \dots, KC, AC\}$ and $B = \{9C, 9D, 9H, 9S\}$.

- a) Find $n(A)$ and $n(B)$.
- b) Write $A \cup B$ and $A \cap B$ as sets.
- c) Describe the sets A' and B' in words.