CSCI 3310 Homework: Introduction

1 Syllabus

Problem 1. How is the course grade computed?
Solution 1. 60% quizzes, 30% final exam, 10% exercises.
Problem 2. When are office hours for the course?
Solution 2. 3:00-5:00 MW, 9:30-10:30 R.

2 Kinds of Numbers

Problem 3. Name three kinds of numbers.
Solution 3. Natural numbers, real numbers, rational numbers.
Problem 4. Are there different sizes of infinity? If so, name two infinite things with different sizes.
Solution 4. Yes, \( \mathbb{Z} \) and \( \mathbb{R} \).
Problem 5. What is another name for fractions?
Solution 5. Rational numbers.
Problem 6. What kind(s) of numbers are 0, \( \pi \), \( \sqrt{2} \)?
Solution 6.
- 0 is an integer, rational number, real number, complex number.
- \( \pi \) is a real number, complex number.
- \( \sqrt{2} \) is a real number, complex number.

3 Divisibility and Primality

Problem 7. Give two prime numbers between 30 and 40.
Solution 7. 31, 37
Problem 8. Give three composite numbers between 30 and 40.
Solution 8. 33, 35, 38
Problem 9. Give a number that is neither prime nor composite.
Solution 9. 0
Problem 10. Give three examples of a number \( n \) such that \( n \mid 24 \).
Solution 10. 8, 12, 3.
Problem 11. Give three examples of a number \( n \) such that \( 24 \mid n \).
Solution 11. 24, 48, 72.