Section 1 - Mini Assignment
February 4th - 6th

Please bring a hard copy of your mini assignment to turn in at the beginning of Section 1. You will be handing in your answers to these problems at the start of the section.

This activity introduces modular arithmetic in order to prepare you for next week’s hashing lecture. You may or may not already be familiar with modular arithmetic. The modulo operation, notated by “%” or “mod,” is simply the remainder when dividing.

For example, suppose we have the equation:

\[ A \mod x \equiv R \]

This means that R is the remainder when you divide A by x. It may be easier to think of it in terms of the equation:

\[ A = \text{some multiple of } x + \text{remainder } R \]

Here are a few examples:

5 mod 3 \equiv 2 \quad (5 = 3k + 2, \text{ where } k = 1) \text{ or } 2 \text{ is the remainder when you divide } 5 \text{ by } 3
10 mod 6 \equiv 4 \quad (10 = 6k + 4, \text{ where } k = 1) \text{ or } 4 \text{ is the remainder when you divide } 10 \text{ by } 6
15 mod 4 \equiv 3 \quad (15 = 4k + 3, \text{ where } k = 3) \text{ or } 3 \text{ is the remainder when you divide } 15 \text{ by } 4
99 mod 7 \equiv 1 \quad (99 = 7k + 1, \text{ where } k = 14) \text{ or } 1 \text{ is the remainder when you divide } 99 \text{ by } 7
200 mod 10 \equiv 0 \quad (200 = 10k + 0, \text{ where } k = 20) \text{ or } 0 \text{ is the remainder when you divide } 200 \text{ by } 10
934058 mod 59 \equiv 0 \quad (934058 = 59k + 29, \text{ where } k = 15831) \text{ or } 29 \text{ is the remainder when you divide } 934058 \text{ by } 59
52343450 mod 7 \equiv 5 \quad (52343450 = 7k + 5, \text{ where } k = 7477635) \text{ or } 5 \text{ is the remainder when you divide } 52343450 \text{ by } 7

Now it’s your turn!

1. 60 mod 6 \equiv _____
2. 56 mod 7 \equiv _____
3. 368 mod 13 \equiv _____
4. 2196 mod 8 \equiv _____
5. 4901 mod 172 \equiv _____
6. 603920415 mod 36 \equiv _____