1. Write a program to check whether the number is neon or not. A neon number is a number where the sum of digits of square of the number is equal to the number. For example: 9 is a neon number as 9*9 = 81 and 8+1= 9.

2. Write a program to check whether the number is Spy number or not. A spy number is a number where the sum of its digits equals the product of its digits. For example, 1124 is a spy number, the sum of its digits is 1+1+2+4=8 and the product of its digits is 1*1*2*4=8.

3. Write a program to check whether the number is Harshad number or not. A number is said to be the Harshad number if it is divisible by the sum of its digit. For example, if number is 156, then sum of its digit will be 1 + 5 + 6 = 12. Since 156 is divisible by 12. So, 156 is a Harshad number.

4. A Happy Year is the year with only distinct digits. Write a program to check whether a year is a Happy year or not. (e.g. 2019 is a Happy Year, 2024 is not a Happy Year)

5. The Lunar sum of two numbers is not determined by the sum of their individual digits, but by the highest digit of the two taken into account at each step. Write a program to calculate the Lunar sum of two numbers. (e.g. 246+317=347, 207+17=217)

6. Write a program to expands a number as shown as follows: `70701 → 70000 + 700 + 1`
   `685 → 600 + 80 + 5`

7. Write a program to check whether a number is twisted prime or not. Twisted prime is a number if the number and its reverse both are prime then it is called twisted prime.

8. Write a program to enter the first number and second number. Display the prime numbers between the first and second number.

9. Write a python program that tests whether a given pair of numbers is amicable numbers or not. The smallest pair of amicable numbers is (220, 284). They are amicable because the proper divisors of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55 and 110, of which the sum is 284; and the proper divisors of 284 are 1, 2, 4, 71 and 142, of which the sum is 220.