Program Set 3 - Loops

1. Write a program to find the product of the first ten natural numbers.
    a. Use while
    b. Use do-while
    c. Use for loops
2. Write a program to find the sum of all even numbers and sum of all odd numbers separately in a given range input by the user.
3. Check if a given number is prime or not.
4. Write a program to print all prime numbers between 1 to 300. (Hint: Use nested loops, break, and continue)
5. Find the sum of all the digits of a user input integer number using any loop. Take the size of the number as input from user too.
6. Reverse a given four digited number and check if the number is palindrome. (Eg. 1221, 3993 etc)
7. Calculate the power of a number. Do not use math.h.
8. Generate the multiplication table of any number. Print it out properly

    9 x 1 = 9

    9 x 2 = 18

    …

    9 x 10 = 90
9. Write a program to print out all Armstrong numbers between 1 and 500. If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number.

    For eg, 153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3)

10.Generate the following patterns

a.
```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

b.
```
1
1 1
1 1 1
1 1 1 1
```

a.
```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

b.
```
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1
```

c.
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

d.
```
          1
        2   2
      3   3   3
    4   4   4   4
  5   5   5   5   5
```