AMA2222 Lab 3 (week 3)

3a)   Sic Bo is a gambling game with rolling three fair dice. If the sum of dots is 11 or above, the result is "BIG". If the sum of dots is 10 or below, the result is "SMALL". However, these two cases are overridden by "TRIPLE" which means all the three dice shows the same number of dots. Write a C++ program that simulates this random process. Refer to below:

Sample 1:

```
The three dice show: 2 6 5

The result is BIG
```

Sample 2:

```
The three dice show: 4 2 2

The result is SMALL
```

Sample 3:

```
The three dice show: 5 5 5

The result is TRIPLE
```

3b)   Stirling's approximation is a very useful approximation for factorial of large numbers. The formula is as follows:

$$n! \sim \sqrt{2\pi n} \left(\frac{n}{e}\right)^n$$

Write a C++ program that reads an integer n and display the approximated value of $n!$ using the formula, displayed with scientific notation. Refer to the below:

Sample 1:

```
Enter an integer n: 10

10! ~ 3.5987e+006
```

Sample 2:

```
Enter an integer n: 20

20! ~ 2.42279e+018
```