- 1 Write the static method max3() which takes three int values as arguments and returns the value of the larges one. Add an overloaded function that does the same thing for three double values. (3)
- Write the static method printN() which takes a String and an int parameter and prints the given string the given number of times. (3)

(5)

(20)

- Write the static method odd() which takes three boolean values as arguments and returns true if an odd number of inputs are true and false otherwise.
- 4 Write the static method factorial() which takes a single integer paramter, n, and returns n!. Note the following requirements.
  - n! is undefined for n < 0
  - 0! = 1
  - $n! = n(n-1)(n-2)\cdots(2)(1)$
- Write the static method majority() which takes three boolean values as arguments and returns true if at least two of the arguments have the value true and false otherwise. Do not use an if statement.
- 6 Binomial Distribution. Write a method to compute the probability of obtaining exactly k heads in N biased coin flips. Calculate the probability of k heads in N flips with probability p using the formula:

$$f(N, k, p) = \frac{N!}{k!(N-k)!} p^k (1-p)^{N-k}$$

Ensure that your method tests for each of the following requirements for N, k, and p.

- $N \ge 0, k \ge 0$
- $0 \le p \le 1$
- if k > N, the probability is 0

Invalid inputs should return the value Double. NaN.