**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)

**2** Write the static method `printN()` which takes a `String` and an `int` parameter and prints the given string the given number of times. (3)

**3** 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. (5)

**4** Write the static method `factorial()` which takes a single integer paramter, `n`, and returns $n!$. Note the following requirements. (5)

- $n!$ is undefined for $n < 0$
- $0! = 1$
- $n! = n(n-1)(n-2)\cdots(2)(1)$

**5** 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. (10)

**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: (20)

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

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

- $N \geq 0, k \geq 0$
- $0 \leq p \leq 1$
- if $k > N$, the probability is $0$

Invalid inputs should return the value `Double.NaN`.