CS101: Lab #11
Writing Classes (Methods) II

Each of the following methods should be `static` and defined in a class called `Utilities`. Implement a second class called `Tester` that calls each of these methods.

1. Write a method that returns the absolute value of a given integer; your implementation may not use `Math.abs`.

2. Write a method that returns the ceiling of an input double. Note, this function always returns the next larger integer (even for negative numbers) except when an integer value is given. For example,

   ```
   ceiling(-1.2) = -1      ceiling(3) = 3    ceiling(1.2) = 2
   ```

3. Write a method that returns $n!$ given an integer n. Your method must use and return a `BigInteger` object. Note, you may need code like

   ```
   fact = fact.multiply(BigInteger.valueOf(i));
   ```

   where `i` is an integer.

4. Write a method that returns a string consistent with the progression:

   ```
   x xx xxx xxxx xxxxx
   ```

   The method input should dictate the length of the pattern. For simplicity, interpret a negative value positively; that is, use absolute value (your absolute value method, not `Math.abs`).