Python Workshop 7 Course Work

Answer the questions given below and submit your work to the Canvas portal provided at the end of the workshop session.

1. Write and test a recursive function that returns *n*!. Do not use any loops.

2. Write and test a recursive function

```
def printDigits(n):
```

that displays a triangle with *n* rows, made of digits. For example, `printDigits(5)` should display

```
55555
4444
333
22
1
```

The function's code under the `def` line should be three lines. ≤ Hint: `print n*str(n)` prints '*n*' *n* times. ≥

3. The same as Question 2, but invert the triangle, so that `printDigits(5)` prints

```
1
22
333
4444
55555
```

4. Write a recursive definition of a function $f(n)$ that has the following properties: $f(1)=10$, $f(2)=30$, and the values $f(1)$, $f(2)$, ..., $f(n)$, ... form an arithmetic sequence.

5. Write a Python program that prompts the user to enter a positive integer n and prints the first n Fibonacci numbers.