Activity :

1. Write a Java method to display the first 50 pentagonal numbers.
Note: A pentagonal number is a figurate number that extends the concept of triangular and square numbers to the pentagon, but, unlike the first two, the patterns involved in the construction of pentagonal numbers are not rotationally symmetrical.
Expected Output:

```
1     5     12    22    35    51    70    92    117   145
176   210   247   287   330   376   425   477   532   590
651   715   782   852   925   1001  1080  1162  1247  1335
1426  1520  1617  1717  1820  1926  2035  2147  2262  2380
2501  2625  2752  2882  3015  3151  3290  3432  3577  3725
```

2. Write a Java method to compute the future investment value at a given interest rate for a specified number of years.
Sample data (Monthly compounded) and Output:
Input the investment amount: 1000
Input the rate of interest: 10
Input number of years: 5

Expected Output:

```
Years    FutureValue
1            1104.71
2            1220.39
3            1348.18
4            1489.35
5            1645.31
```

3. Write a Java method to check whether a year (integer) entered by the user is a leap year or not.

Expected Output:

```
Input a year: 2017
false
```

4. Write a Java method to check whether a string is a valid password.
Password rules:
A password must have at least ten characters.
A password consists of only letters and digits.
A password must contain at least two digits.

Expected Output:

```
1. A password must have at least eight characters.
2. A password consists of only letters and digits.
3. A password must contain at least two digits
Input a password (You are agreeing to the above Terms and
Conditions.): abcd1234
Password is valid: abcd1234
```

5. Write a Java method (takes n as input) to display an n-by-n matrix.

Expected Output:

```
Input a number: 10
1 0 0 1 1 0 0 0 1 1
0 0 1 0 1 0 1 0 0 0
0 1 0 1 0 0 0 0 0 1
1 1 1 0 0 0 0 1 1 1
1 1 0 1 1 1 0 1 0 0
1 0 0 0 1 1 0 0 0 0
0 0 1 0 0 0 0 1 1 1
1 1 0 1 0 1 0 0 1 0
0 0 1 0 0 0 0 1 1 0
1 1 1 0 0 1 1 1 1 0
```

6. Write Java methods to calculate triangle area.

Expected Output:

```
Input Side-1: 10
Input Side-2: 15
Input Side-3: 20
The area of the triangle is 72.6184377413890
```

5. Write a Java method to create a pentagon's area.

Expected Output:

```
Input the number of sides: 5
Input the side: 6
The area of the pentagon is 61.93718642120281
```

6. Write a Java method to find if given number from user is prime or not.

7. Write a Java method that accepts three integers and checks whether they are consecutive or not. Returns true or false.

Expected Output:

```
Input the first number:  15
Input the second number:  16
Input the third number:  17
Check whether the three said numbers are consecutive or not!true
```

8. Write a Java method that accepts three integers and returns true if one is the middle point between the other two integers, otherwise false.

Expected Output:

```
Input the first number:  2
Input the second number:  4
Input the third number:  6
Check whether the three said numbers has a midpoint!
true
```

9. Write a Java method for extracting the first digit from a positive or negative integer.

Expected Output:

```
Input an integer(positive/negative): 1234
Extract the first digit from the said integer:
1
```

10. Write a Java method to display the factors of 3 in a given integer.

Expected Output:

```
Input an integer(positive/negative): 81

Factors of 3 of the said integer:
81 = 3 * 3 * 3 * 3 * 1
```

11. Write a Java method to check whether every digit of a given integer is even. Return true if every digit is odd otherwise false.

Expected Output:

```
Input an integer: 8642
Check whether every digit of the said integer is even or not!
true
```

12. Write a Java method that checks whether all the characters in a given string are vowels (a, e,i,o,u) or not. Return true if each character in the string is a vowel, otherwise return false.

Expected Output:

```
Input a string:  AIEEE
Check all the characters of the said string are vowels or not!
true
```