**1. Write a java code for the following problem:**

**Input:**

5

**Output:**

    \*

   \*\*\*

  \* \* \*

 \*  \*  \*

\*\*\*\*\*\*\*\*\*

**Input:**

6

**Output:**

     \*

    \*\*\*

   \* \* \*

  \*  \*  \*

 \*   \*   \*

\*\*\*\*\*\*\*\*\*\*\*

**2. Write a java code for the following problem:**

You have to find out the sum for the following series:

**12 + (12+22) + (12+22+32) + … … … + (12+22+32+ … … + n2)**

**Input:**

2

**Output:**

sum = 6

**Input:**

3

**Output:**

sum = 20

**Input:**

4

**Output:**

sum = 50

**Problem 3:** Write a java code for the following problem

**Input:**

3

**Output:**

+++\*\*\*

++\*\*\*

+\*\*\*

++\*\*\*

+++\*\*\*

**Input:**

4

**Output:**

++++\*\*\*\*

+++\*\*\*\*

++\*\*\*\*

+\*\*\*\*

++\*\*\*\*

+++\*\*\*\*

++++\*\*\*\*

**Problem 4:** Write a java program that takes a 4-digit year and outputs whether it  is leap year or not.

**Input:**

2010

**Output:**

2010 is not a leap year.

**Input:**

1900

**Output:**

1900 is not a leap year.

**Input:**

2004

**Output:**

2004 is a leap year.

**Problem 5:** Write a program that prints whether a given number is divisible by 3. The number can be huge (may contain up-to 1000 digits).

(Hint: A number is divisible by 3 if the **sum of its digits** is divisible by 3.)

**Input:**

141414141414141414

**Output:**

141414141414141414 is divisible by 3.

**Input:**

2368049403457746389253849640734644954763

**Output:**

2368049403457746389253849640734644954763 is divisible by 3.

**Input:**

557629788989463427894562342368049403457746389253849640734644954763

**Output:**

557629788989463427894562342368049403457746389253849640734644954763 is divisible by 3.

**Input:**

4534295845646646898446545584464587649964469446664789984665548796589456462789456234236804940345774638

**Output:**

4534295845646646898446545584464587649964469446664789984665548796589456462789456234236804940345774638 is not divisible by 3.