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Lab – Writing Recursive Methods

For each of the following, write a static definition, a recursive method, and give a sample activation chain. *Put all of these methods into one class with one main driver.*

1. Complete the recursive method to sum all the positive even numbers up to a given number.

```
//precondition: x >=0 and x is even  
public int sum(int x)
```

2. Complete the recursive method to multiply all the negative numbers from a given number up to -1.

```
//precondition: y < 0  
public int multiply(int y)
```

3. Complete the recursive method to calculate base^{exp} given base and exp.

```
//precondition: exp > 0  
public int power(int base, int exp)
```

4. Complete the recursive method to return a string comprised of one star for every letter in a given string.

```
//precondition: str has at least one character  
public String star(String str)
```

5. Complete the recursive method to print out all the letters in a string backwards.

```
public void backwards(String s)
```

6. Complete the recursive method to return the nth power of 2.

```
//precondition: n > 0  
public int powerOfTwo(int n)
```

7. Write a recursive function to produce a pattern of n lines of asterisks. First line has 1, second has 2, up to nth that has n. Line n+1 has n, next lines have n-1, and so on until line 2n, which has 1.

```
//precondition: n > 0  
public int stars(int n)
```