Recursion Worksheet

For each of the following use the trace method taught to you in class to help identify what is the end result for each recursive function call:

1. For the following method, what would be displayed by the call *mystery1(5)*?

```
function mystery1(nNum)
    {
      if (nNum <= 0)
      {
        return 0;
      }
      else
      {
        return nNum + mystery1(nNum - 1);
      }
    }
```

5+4+3+2+1=0
=15

2. For the following method, what would be displayed by the call *mystery2(5)*?

```
function mystery2(nNum){
            if(nNum <= 0)
            {
                return 0+"";
            }
            return (nNum) + " " + mystery2(nNum - 1);
    }
```

5+""+4+""+3+""+2+""+1+0+""
5 4 3 2 1 0

3. For the following method, what would be displayed by the call: *mystery3(4)*?

```
function mystery3(nNum){
            let data="";
            if(nNum <= 0)
            {
                    return "";
            }
            for(let nI = 0; nI < nNum; nI++)
            {
                    data+=("-");
            }
            for(let nI = 0; nI < nNum; nI++)
            {
                    data+=("+");
        }
            return data + mystery3(nNum - 1) +"\n";
    }
```

----++++--++++--++--+\n\n\n\n

4. For the following method, what value would be returned by the call: *ans =mystery4(4)?*

```
function mystery4(nNum)
    {
      if (nNum > 1)
      {
```

```
            return nNum * mystery4(nNum - 2);
        }
        else
        {
            return 2;
        }

    }
```

4*2*2
=16

5. For the following method, what value would be returned by the call *ans=mystery5(6,8)*?

```
function mystery5(k, n)
    {
        if (n == k)
        {
            return k;
        }
        else
        {
            if (n > k)
            {
                return mystery5(k, n - k);
            }
            else
            {
                return mystery5(k - n, n);
            }
        }
    }
```

6,2
4,2
2,2
2

6. For the following method, what would be displayed by the call: *mystery6("abcdefgh")*?

```
 function mystery6(sWord){
          let nL = sWord.Length; 8
        if (nL > 1)
        {
            String sTemp = sWord.substring(Math.round(nL / 2.0); 4
            return sTemp + mystery6(sTemp);
        }
        else { return ""; }
    }
```

efgh
gh
h