The Basics of Recursion

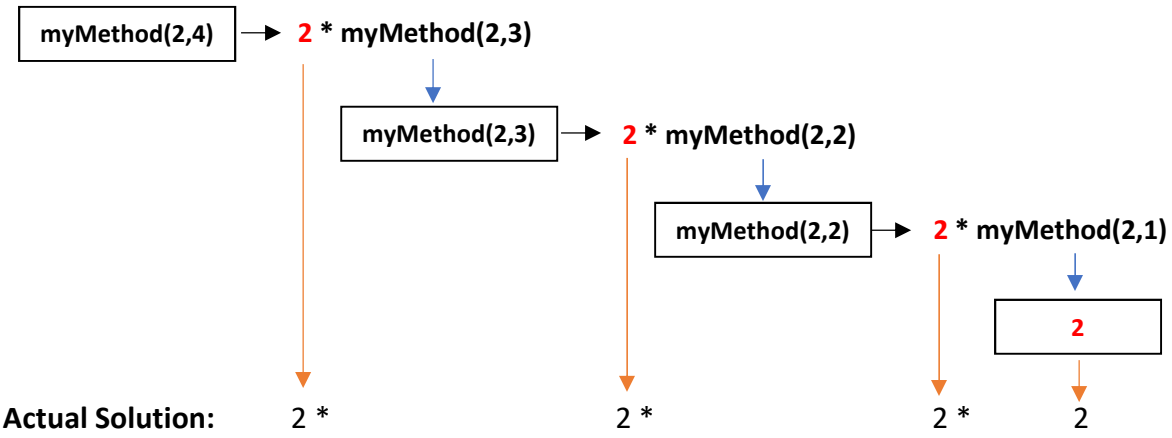
Recursion – When a method calls itself (creating the potential for an infinite loop!)

```
public class methods02 {
   public static int myMethod(int x, int y){
      if(y==1)
         return x;
      else
         return x * myMethod(x,y-1);
   }
   public static void main(String[] args) {
      int a=2, b=4;
      System.out.println(myMethod(2,4));
   }
}
```

How The Computer Solves This Problem

1. myMethod(2,4) is called ---------- Find ***myMethod****(int x, int y)*
2. Check/get the parameters ---------- x = 2 and y = 4
3. Run the method ---------- Finds the *if(y==1)* boolean test (FALSE)
4. Move on to the else and perform ---------- Should return 2 * myMethod(2,3)
5. To answer, we need to find myMethod(2,3) -------- That should return 2 * myMethod(2,2)
6. To answer, we need to find myMethod(2,2) -------- That should return 2 * myMethod(2,1)
7. To answer, we need to find myMethod(2,1) -------- y=1 here so it just returns x, which is 2

Visual Representation of How It Gets Solved



Actual Solution: 2 * 2 * 2 * 2

OR: 2*2*2*2 which is the same as 2 to the 4th power (2^4) which = 16