CSE131 Quiz 2: Recursion
September 14, 2007

```java
int foo(int j, int k) {
    if (j == k)
        return 0;
    else if (j > k)
        return -1;
    else
        return 2 + foo(j+1, k-1);
}
```

1. Using the substitution model, show the execution of `foo(6, 10)`. Circle the return value.

2. In the execution of `foo(7,8)`, draw the execution stack as it would look just before the first time line 5 is executed.

3. Recall that `a % b == 0` when `a` is divisible by `b`.
   Write a recursive method called `numFactors` with the following specification:

   PARAMETERS: positive integers `n` and `k`
   RETURN VALUE: the number of times `k` is a factor of `n`
   EXAMPLES: `numFactors(12, 7)` is 0, because 7 is not a factor of 12.
               `numFactors(25, 5)` is 2, because 25 = 5*5.
               `numFactors(52, 13)` is 1, because 52 = 13*4.
               `numFactors(32, 4)` is 2, because 32 = 4*4*2.
   HINT: Think about what happens to the number of factors when you divide `n` by `k`. 