

## 1) (5 pts) DSN (Recursive Coding)

Write a **recursive function** below so that it returns the maximum integer  $k$  such that  $\text{base}^k \leq \text{ans}$ . For example if base is 3 and ans is 123, then 4 should be returned since  $3^4 = 81$  and  $3^5 = 243$ . The restricted bounds below are to ensure that integer overflow isn't an issue.

```
// Pre-condition: 1 < base <= 1000, 1 <= ans <= 1000000
int maxpowLTE(int base, int ans) {

    // Grading: 1 pt if, 1 pt return.
    if (ans < base)
        return 0;

    // Grading: 3 pts total, 1 pt return 1 +, 1 pt rec call,
    // 1 pt parameters to rec call.
    return 1 + maxpowLTE(base, ans/base);

}
```