

Name: _____

UCFID: _____

NID: _____

1) (10 pts) DSN (Recursive Coding)

If Annabelle plays a video game for t minutes, she'll earn $f(t)$ points. (The function f is provided below.) f is a non-decreasing function. (This means that if $a < b$, then $f(a) \leq f(b)$.) Annabelle wants to earn at least **target** number of points, but since she gets in trouble if she plays too much, she would like to play the least number of minutes that allows her to score at least **target** number of points. Complete the function below to be recursive and efficient (max # of recursive calls should be around 30) to solve the problem. You may assume that $0 < \text{target} < 60000$, thus it's guaranteed that $0 < t < 10^9$ (for the function f given below.)

```
#include <math.h>
```

```
int f(int t) {  
    return (int) (2*sqrt(t)+log(t));  
}
```

```
int minPlay(int target) {  
    return minPlayRec(target, 0, 1000000000);  
}
```

```
int minPlayRec(int target, int low, int high) {
```

```
}
```