1) (10 pts) ANL (Algorithm Analysis)

Below is a program which includes a single function call to the function mysqrt. The function mysqrt includes a while loop. Give an estimate as to how many times that while loop will run during the single function call from main. (Note: a portion of credit for this question will be awarded to the theoretical analysis of the code and the rest of the credit will be awarded to applying that analysis in concert with estimation techniques without a calculator.)

```c
int main() {
    printf("%.6f\n", mysqrt(1000));
    return 0;
}

double mysqrt(double n) {
    double low = 1, high = n;
    if (n < 1) {
        low = n;
        high = 1;
    }
    while (high - low > .000001) {
        double mid = (low+high)/2;
        if (mid*mid < n)
            low = mid;
        else
            high = mid;
    }
}
```