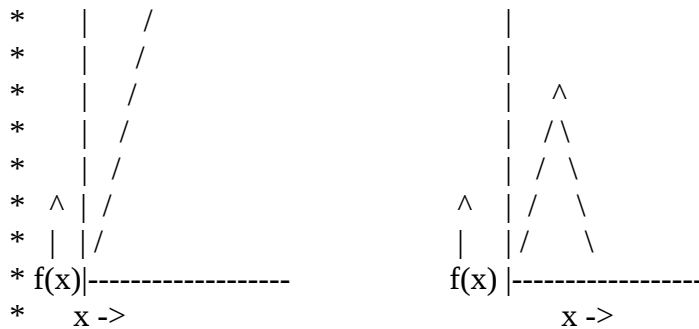


```

/* binary search only works if f(x) increases w.r.t of x
* but in this problem, f(x) is unimodal
* that is, at first, increasing x, f(x) increases, after a certain value, increasing x causes f(x) to
decrease

```



```

* Binary Search Works Here    Ternary Search Works Here
*/

```

```

long double ternarySearch(long double lo, long double hi) {
    long double l1, l2, ans;
    for(int i = 0; i < 100; ++i) {
        l1 = lo+(hi-lo)/3.0;
        l2 = hi-(hi-lo)/3.0;
        if(f(l1) > f(l2)) {                // Function f(x) generates output for input x
            hi = l2;
            ans = l1;
        }
        else
            lo = l1;
    }
    return ans;
}

```

```

// Bisection Loop:
double Bisect(double lo, double hi) {
    double ans, mid;
    for(register int i = 0; i < 50; i++) {
        mid = (lo+hi)/2.0;
        if(f(mid) <= EPS) {                // As it returns double, for precision EPS is added instead of
            ans = mid;                      // f(mid) == 0
            hi = mid;
        }
        else
            lo = mid;
    }
    return ans;
}

```