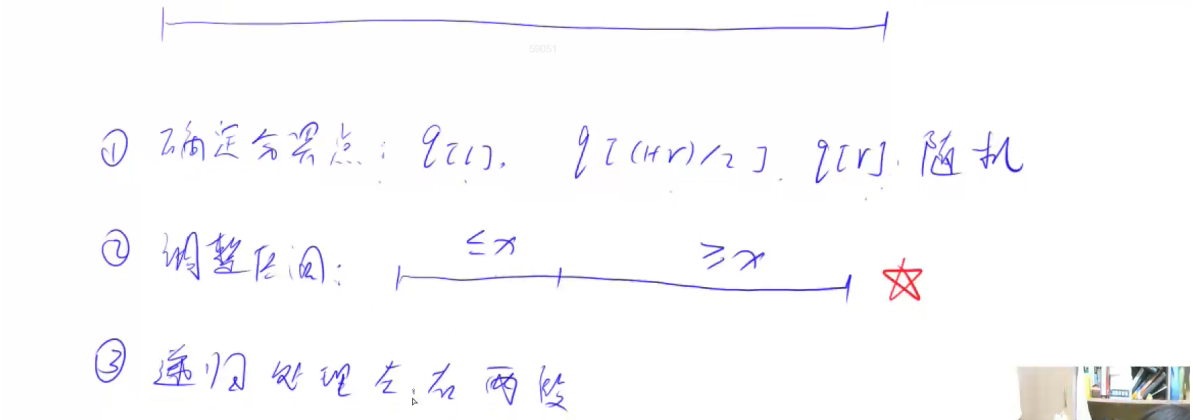
快排



```cpp
#include <iostream>

using namespace std;

const int N = 1e6 + 10;

int n;
int q[N];

void quick_sort(int q[], int l, int r)
{
    if (l >= r) return;

    int x = q[l], i = l - 1, j = r + 1;
    while (i < j)
    {
        do i ++ ; while (q[i] < x);
        do j -- ; while (q[j] > x);
        if (i < j) swap(q[i], q[j]);
    }

    quick_sort(q, l, j);
    quick_sort(q, j + 1, r);
}

int main()
{
    scanf("%d", &n);
    for (int i = 0; i < n; i ++ ) scanf("%d", &q[i]);

    quick_sort(q, 0, n - 1);

    for (int i = 0; i < n; i ++ ) printf("%d ", q[i]);

    return 0;
}
```

#include

using namespace std;

const int N = 100010;

int q[N];

void quick_sort(int q[], int l, int r)
{
    if (l >= r) return;

```
    int i = l - 1, j = r + 1, x = q[l + r >> 1];
    while (i < j)
    {
        do i ++ ; while (q[i] < x);
        do j -- ; while (q[j] > x);
        if (i < j) swap(q[i], q[j]);
    }

    quick_sort(q, l, j);
    quick_sort(q, j + 1, r);
```

}

int main()
{
  int n;
  scanf("%d", &n);

```
    for (int i = 0; i < n; i ++ ) scanf("%d", &q[i]);

    quick_sort(q, 0, n - 1);

    for (int i = 0; i < n; i ++ ) printf("%d ", q[i]);

    return 0;
```

}