Binaray Search

```
Alg RBin.Search(l, h, key)
{
    if (l = h)
1 ~     if(A[l] == key
            return l
        else return 0;    // Not found
    else
        mid = (l+h) / 2
1 ~     if (key == A[mid])
            return mid
        if (key < A[mid])
T(n/2)      return RBinsearch[l, mid-1, key];
    else
        return RBinsearch[mid+1, h, key];
```

$$T(n) = \begin{cases} 1 & n = 1 \\ T(\frac{n}{2}) + 1 & n > 1 \end{cases}$$

therefore $\boxed{O(\log n)}$