|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Cost | Times executed | total |
| int numP=0 | C | 1 | C |
| Int numHigh=0 | C | 1 | C |
| int numhloop=0 | C | 1 | C |
| Int numploop=0 | C | 1 | C |
| Int num=0 | C | 1 | c |
| Int i=0 | C | n | Cn |
| i<M.length | C | n | cn |
| i++ | c | n | cn |
| M[i]>p | c | n | cn |
| numhloop++ | c | n | cn |
| M[i]==p | c | n | cn |
| numploop++ | c | n | cn |
| M[i]<p | c | n | cn |
| numL++ | c | n | cn |
| Int i=0 | C | n | Cn |
| i<M.length | C | n | cn |
| i++ | c | n | cn |
| M[i]>p | c | n | cn |
| numHigh++ | c | n | cn |
| int temp=M[i] | c | n | cn |
| M[i]=M[M.length-numHigh] | c | n | cn |
| M[M.length.numHigh]=temp | c | n | cn |
| numHigh==numhloop | c | cn | cn |
| Int i=0 | C | n | Cn |
| i<M.length | C | n | cn |
| i++ | c | n | cn |
| i==numL+numP-1&&numP>0 | c | n | cn |
| M[i]==p | c | n | cn |
| numP++ | c | n | cn |
| int temp=M[i] | c | n | cn |
| M[i]=M[numL+numP-1] | c | n | cn |
| M[numL+numP-1]=temp | c | n | cn |
| numP==numPloop | c | n | cn |

29cn+5c

simplifies to O(n)