

```
for (i=0; i<n; i++)  
{  
    stmt;  
}
```

```
for (i=0; i<n; i++)  
{  
    for (j=0; j<n; j++)  
    {  
        stmt;  
    }  
}
```

```
for (i=0; i<n; i++)
{
    for (j=0; j<i; j++)
    {
        stmt;
    }
}
```

```
for (i=1; i<n; i*2)
{
    stmt;
}
```

```
for (i=n; i>=1; i/2)
{
    stmt;
}
```

سوال ۲ تکلیف

```
while (n>1){
    for(i=1; i<n; i++){
        x = x+1
    }
    n = [n/2]
}
```

```
sum=0;
for (i=1; i<=n; i=i*2){
    for (j=1; j<=n/i; j++){
        sum++;
    }
}
```

یکبار با درخت یکبار با Substitution

```
void Test (int n){  
    if (n>0){  
        print("%d",n)  
        Test(n-1);  
    }  
}
```

سوال ۶ تکلیف

```
void Test (int n){
    if (n>0){
        for (i=0, i<n, i=i*2){
            print("%d", i)
        }
        Test(n-1);
    }
}
```

Master Method

Case 1: if $\log_b a > k$ then $O(n^{\log_b a})$

Case 2: if $\log_b a = k$

if $p > -1$ $O(n^k \log^{p+1} n)$

if $p = -1$ $O(n^k \log \log n)$

if $p < -1$ $O(n^k)$

Case 3: if $\log_b a < k$ if $p \geq 0$ $O(n^k \log^p n)$

if $p < 0$ $O(n^k)$