1 Runtime Analysis

Find out the Big-Θ bound of the following functions:

1.
```java
public void f1(int N) {
    if (N <= 0) {
        return;
    }
    System.out.println("working");
    return f1(N-1) + f1(N-1) + f1(N-1);
}
```

2.
```java
public void f2(int N) {
    int count = 0;
    for(int i = N/2; i < N; i++) {
        for(int j = 1; j <= N; j = 2 * j) {
            for(int k = 1; k <= N; k = k * 2) {
                count++;
            }
        }
    }
}
```

3.
```java
public void f3(int N, int M) {
    if (N <= 0) {
        return;
    }
    for(int i = 0; i < M; i++) {
        System.out.println("working");
    }
    return f3(N-1, M) + f3(N-1, M) + f3(N-1, M);
}
```

4.
```java
public void f4(int N) {
    if (N <= 0) {
        return;
    }
    for(int i = 0; i < N; i++) {
        System.out.println("working");
    }
    return f4(N-1) + f4(N-1);
}
```

2   B-Trees

1. Construct a 2-3 B-Tree with keys in order: 1, 6, 7, 2, 4, 5, 30, 25.

2. Construct a 2-3-4 B-Tree with the same keys above.