EE 312 Fall '14 Exercise 5:   NAME: _____

For each of the functions below, provide a "big-Oh" expression giving the worst case, asymptotic time complexity.

a) _____
```
void doit() {
  int j = 0;
  int k = 0; // ←NOTE:  k is initialized outside the loop
  while (j < N) {
    while (k < N) {
      k += 1;
    }
    j += 1;
  }
}
```

b) _____
```
void doit(int N) {
  int k = 1;
  while (k < N * N) {
    k = k * 2;
  }
}
```

c) _____
```
void doit(int N) {
  for (int k = 1; k < N; k *= 2) {
    for (int j = 1; j < k; j += 1) {
    }
  }
}
```

d) _____
```
void doit(int N) {
  for (int k = 1; k < N; k += 2) {
    for (int j = 1; j < k; j += 1) {
    }
  }
}
```

e) _____

```
void doit(int N) {// give the time complexity for this function
    for (int k = 0; k < N; k += 1) {
        if (fun(N) == k) { k = N; break; }
    }

    int fun(int x) {
        int i = 0;
        int j = 1;
        while (j < x) {
            i = i + 1;
            j = j * 2;
        }
        return i;
    }
```