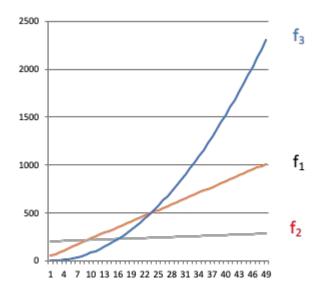
f(n) is $\mathbf{O}(g(n))$, if there are positive constants c and n_0 such that $f(n) \le c * g(n)$ for all $n \ge n_0$.

f(n) is $\Omega(g(n))$, if there are positive constants c and n_0 such that $f(n) \ge c \ g(n)$ for all $n \ge n_0$.

f(n) is $\theta(g(n))$ if f(n) is O(g(n)) and f(n) is $\Omega(g(n))$.



For each function in the list below, it is related to the function below it by O, and the reverse is **not** true. That is, $n ext{ is } O(n^2)$ but $n^2 ext{ is } \textbf{not } O(n)$.

```
f(n) = 1/(n²)
f(n) = 1/n
f(n) = 1
f(n) = log(n)
f(n) = sqrt(n)
f(n) = n
f(n) = n²
f(n) = n³
f(n) = n⁴
... and so on for constant polynomials ...
f(n) = 2<sup>n</sup>
f(n) = n!
f(n) = n<sup>n</sup>
```

```
boolean find1( String[] theList, String toFind ) {
    for ( int i = 0; i < theList.length; i += 1 ) {
        if ( theList[i].equals( toFind )) {
            return true;
    return false;
}
boolean find2( String[] theList, String toFind ) {
    boolean found = false;
    for ( int i = 0; i < theList.length; i += 1 ) {
        if ( theList[i].equals( toFind )) {
            found = true;
    return found;
}
public static boolean isSorted1(int[] arr) {
  for(int i = 0; i < arr.length - 1; i += 1) {
    if(arr[i] > arr[i + 1]) { return false; }
  return true;
public static boolean isSorted2(int[] arr) {
  for(int i = 0; i < arr.length; i += 1) {</pre>
    for(int j = i + 1; j < arr.length; j += 1) {
      if(arr[i] > arr[j]) { return false; }
  return true;
```