1. Recall that in class we showed that the following algorithm was
$$O\left(\sum_{i=0}^{n-1} f_i(n)\right).$$
Show that it is also
$$\Omega\left(\sum_{i=0}^{n-1} f_i(n)\right).$$

```java
for (i = 0; i < n; i++) {
    // Runtime of func(i,n) is T_i(n)
    // which is Theta(f_i(n))
    func(i,n);
}
```

2. Suppose that `func1(n)` and `func2(n)` are algorithms that have runtimes $T(n)$ and $U(n)$, respectively. Suppose also that both $T(n)$ and $U(n)$ are $O(f(n))$. Use the definition of big-$O$ to show that the runtime of the algorithm

```java
func1(n);
func2(n);
```

is also $O(f(n))$. If $T(n)$ and $U(n)$ are both $\Theta(f(n))$, is it also true that the runtime of this algorithm is $\Omega(f(n))$?