Tai Duc Nguyen

CS 260
HW 1

1.10
- $f_1(n)$ is $O(f_2(n))$ $\forall n$ and $f_2(n)$ is $\Omega(f_1(n))$ $\forall n$
- $f_1(n)$ is $\Omega(f_3(n))$ $\forall n = 2k$ and $f_3(n)$ is $O(f_1(n))$ $\forall n = 2k+1$
- $f_1(n)$ is $\Omega(f_4(n))$ $\forall n > 100$ and $f_4(n)$ is $O(f_1(n))$ $\forall n \leq 100$.

- $f_2(n)$ is $O(f_3(n))$ $\forall n = 2k$ and f_3 is $\Omega(f_2(n))$ $\forall n = 2k+1$
- $f_2(n)$ is $O(f_4(n))$ $\forall n > 100$ and f_4 is $\Omega(f_2(n))$ $\forall n \leq 100$

- $f_3(n)$ is $O(f_4(n))$ $\forall n = 2k$ and f_4 is $\Omega(f_3(n))$ $\forall n = 2k+1$.

1.12 a) procedure matmpy : $f(t) = t^3$

b) procedure mystery : $f(t) = \frac{1}{4} t^3$

c) procedure veryodd : $f(t) = \begin{cases} 0, & t \text{ is even} \\ \frac{1}{4} t^3, & t \text{ is odd} \end{cases}$

d) procedure recursive : $f(t) = 2t$