R-3.20 $T(n) = n^2$

$f(n) = n\log n$

So $T(n) \in \Omega(f(n))$ when $c, n0 > 0$

so $T(n) \geq c\, f(n)$

$n * n \geq c * n * \log n$

So if $c = 1$ and $n0 = b^b$

then $n \geq \log n$

therefore, it will be true $T(n) \in \Omega f(n)$ for every $n > n0$ because $b^b \geq b$ when $b > 1$

R 3.27

$O(n^3)$

C-3.35

Mix the 3 sets together and then sort them. Traverse the list, and search whether there are 3 instances of the same time, which is $O(n\log n)$

C 3.49 $F(n) = F(n-2) + F(n-1)$ for $n > 2$

$F(1) = 1 \quad F(2) = 2$

when $F(n) < 2^{n-2} + 2^{n-1}$ since

$2^{n-2} + 2^{n-1} < 2^{n-1} = 2 \cdot 2^{n-1} = 2^n$ by proposition 3.20.

Prove that $F(n) \leq (3/2)^n$ for $n > 0$

$2^{n-2} + 2^{n-1} \leq (3/2)^n$

$2^{(k+1)-2} + 2^{(k+1)-1} \leq (3/2)^{k+1}$

$2^{k-1} + 2^k \leq c(3/2)^{k+1}$