problem 3

a) $T(n) = \sum_{i=2}^{n-1} \Theta(1) = \Theta(n)$

b) Geometric series $\Rightarrow T(n) = \sum_{i=0}^{n} \sum_{k=0}^{k-1} \Theta(1)$

$= \sum_{i=0}^{n} \sum_{k=0}^{i^2-1} \Theta(1)$

$= \sum_{i=0}^{n-1} \Theta(n^2)$

$= n^4$

c) $T(n) = \sum_{i=1}^{n} \sum_{k=1}^{n} \sum_{n=1}^{n} \Theta(1) = O(n^3)$

d) $T(n) = \sum_{i=0}^{n-1} \sum_{j=0}^{n-1} \Theta(1) = \sum_{i=0}^{n-1} \sum_{j=0}^{i-1} \Theta(1)$

$= \sum_{i=0}^{n-1} \Theta(1) = O(n)$