**Problem 7**

a) a=8, b=2, c=2

c < logba

2 < log28

2 < 3

Hence, case 3 of master theorem, T(n) = O(n3)

b) a = 3, b=4, f(n) = nlogn

logba = log43 = 0.7925

f(n) = nlogn > n0.7925

Hence, case 1 of master theorem, T(n) = O(nlogn)

c) a = 2, b= 4, c = 0.5

c = logba

0.5 = log42

0.5 = 0.5

Hence, case 2 of master theorem, T(n) = O( logn)