

1. (25%) What Asymptotic solution, if any, does the master method give for each of the following recurrences?

(a)  $T(n) = 16T(\frac{n}{2}) + 3n^4 \log^2(n) = \Theta(n^4 \log^2(n))$

*Proof.* Let  $a = 16$ ,  $b = 2$ ,  $f(n) = 3n^4 \log^2(n)$

□