

EECE 3220

Summer Session

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Problem 1 : Big O notation.

(a) $T(n) = n^2 + 10n \cdot \log_2 n + 3220$

→ since $n^2 > 10n \cdot \log_2 n > 3220$ for $n \gg 1$

⇒ $O(T(n)) = O(n^2)$.

(b) $T(n) = 9n^4 + 3^n$

→ for small n such as $n = 1, 2, 3, \dots$ $9n^4 > 3^n$

→ For big n such as $n \gg 1$: $3^n > 9n^4$
(e.g. $3^{10} \gg 9 \cdot 10^4$).

⇒ $O(T(n)) = O(3^n)$