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1a. $3x^3 + x^2 \log n + 2x^2 + 3 \log n$

high time complexity $= 3x^3$

$3x^3 + 2x^2 + x^2 \log n + 3 \log n$

$3x^3 + 2x^2 + \log n (x^2 + 3)$ // $x^2 + 3$ combine
// $\log n$ combine

$3x^3$ // lower terms removed

$3x^3 = O(x^3)$ // Constants removed

$O(x^3)$

1b. $2x^2 + (\log x)^2 + \log x + 8$

high time complexity $= 2x^2$

$2x^2 + (\log x)^2 + \log x + 8$

$2x^2 + \log x (\log x + 1) + 8$ // $(\log x)^2$ splits
// $(\log x + 1)$ created

$2x^2$ // lower terms removed

$2x^2 = \Theta(x^2)$ // Constants removed

$\Theta(x^2)$