

22.4.2 Estimate the time complexity for adding two  $n \times m$  matrices and multiplying  $n$  by  $m$  matrix by  $m$   $n$  by  $k$  matrix.

$$\begin{array}{ll} O(nm) & O(nm) \\ \underline{O(nm \cdot mk)} & O(nmk) \\ \cancel{O(nm^2n)} & \end{array}$$

22.4.3 Algorithm for finding the occurrence of the max element in an array.

$O(n)$  takes one for loop to scan for the maximum element

22.4.4 Describe an element for removing duplicates from an array.

~~One loop to traverse the array~~

~~$O(n^2)$~~

two loops for each element in the input array, store it to a new array if it is new. run loop over that array to check if it is new  $O(n^2)$