

1. $\Theta(n * m) = \Theta(n * \lfloor n/2 \rfloor) = \Theta(n^2/2) = \Theta(n^2)$

Since m is related to n , we can substitute m for n ; both $\lfloor n/2 \rfloor$ and $n/2$ is linear so floor function is removed; constant $1/2$ is ignored.

2. $\Theta(n) * \Theta(m) = \Theta(n * m)$

m is not related to n ; we have to iterate through the entire $m*n$ vector to set them to zero

3. $\Theta(n) + \Theta(m) = \Theta(n + m)$

we take $\Theta(n)$ time to set the first element of all sub-vectors to zero; additionally, we need $\Theta(m)$ time to set one sub-vector to all zero. Therefore, we use addition here.