

1.

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CSC 6013

Week 6

In Class Exercise

① a) 64×13

$= n \times m$

$= 832$

n	m	Steps
64	13	64 is even. $\frac{64}{2}$. 13×2 .
32	26	32 is even. $\frac{32}{2}$. 26×2
16	52	16 is even. $\frac{16}{2}$. 52×2
8	104	8 is even. $\frac{8}{2}$. 104×2
4	208	4 is even. $\frac{4}{2}$. 208×2
2	416	2 is even. $\frac{2}{2}$. 416×2
1	832	832

b) 60×13

$= n \times m$

$= 780$

n	m	Steps
60	13	60 is even. $\frac{60}{2}$. 13×2
30	26	30 is even. $\frac{30}{2}$. 26×2
15	52	15 is odd. $\frac{15-1}{2}$. 52×2 . (+52)
7	104	7 is odd. $\frac{7-1}{2}$. 104×2 (+104)
3	208	3 is odd. $\frac{3-1}{2}$. 208×2 (+208)
1	416	$416 + 52 + 104 + 208 = 780$

c) 59×13

$= n \times m$

$= 767$

n	m	Steps
59	13	59 is odd. $\frac{59-1}{2}$. 13×2 (+13)
29	26	29 is odd. $\frac{29-1}{2}$. 26×2 (+26)
14	52	14 is even. $\frac{14}{2}$. 52×2
7	104	7 is odd. $\frac{7-1}{2}$. 104×2 (+104)
3	208	3 is odd. $\frac{3-1}{2}$. 208×2 (+208)
1	416	$416 + 13 + 26 + 104 + 208 = 767$

2.

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Pivot = 85
Left to compare [100, 33, 22, 213, 65, 29, 153, 199, 47, 181,
85]
i = 100
j = 100
Less than the pivot: []
Greater than the pivot: [100]
Left to compare [33, 22, 213, 65, 29, 153, 199, 47, 181, 85]
i = 100
j = 33
Swapping i (100) and j (33)
i = 100
Less than the pivot: [33]
Greater than the pivot: [100]
Left to compare [22, 213, 65, 29, 153, 199, 47, 181, 85]
i = 100
j = 22
Swapping i (100) and j (22)
i = 100
Less than the pivot: [33, 22]
Greater than the pivot: [100]
Left to compare [213, 65, 29, 153, 199, 47, 181, 85]
i = 100
j = 213
Less than the pivot: [33, 22]
Greater than the pivot: [100, 213]
Left to compare [65, 29, 153, 199, 47, 181, 85]
i = 100
j = 65
Swapping i (100) and j (65)
i = 213
Less than the pivot: [33, 22, 65]
Greater than the pivot: [100, 213]
Left to compare [29, 153, 199, 47, 181, 85]
i = 213
j = 29
Swapping i (213) and j (29)
i = 100
Less than the pivot: [33, 22, 65, 29]
Greater than the pivot: [100, 213]
Left to compare [153, 199, 47, 181, 85]
i = 100
j = 153
Less than the pivot: [33, 22, 65, 29]
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Greater than the pivot: [100, 213, 153]
Left to compare [199, 47, 181, 85]
i = 100
j = 199
Less than the pivot: [33, 22, 65, 29]
Greater than the pivot: [100, 213, 153, 199]
Left to compare [47, 181, 85]
i = 100
j = 47
Swapping i (100) and j (47)
i = 213
Less than the pivot: [33, 22, 65, 29, 47]
Greater than the pivot: [100, 213, 153, 199]
Left to compare [181, 85]
i = 213
j = 181
Less than the pivot: [33, 22, 65, 29, 47]
Greater than the pivot: [100, 213, 153, 199, 181]
Swapping i (213) and j (85)
Final array: [33, 22, 65, 29, 47, 85, 153, 199, 100, 181, 213]
Pivot index: 5
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