

Two Wongs Make A Right (Larry Wong, Eric Wong)
APCS02 -- pd8
HW02 -- Speaking In Pseudocode
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Step-By-Step Procedure:

(while curRow \geq 0 && curCol $<$ n)

1. Start from the bottom left in your search
2. Check if it matches what you are looking for
3. If the number is too low compared to your target, move one to the right
4. If the number is too high compared to your target, move up
5. Repeat this process over until you have reached your target or the top right of the array.

Best Case $O(1)$: The number you are looking for is at index $[n-1][0]$ (**bottom left**)

Worst Case $O(2n - 2)$: The number is at the **top right** $[0][n-1]$.

Looking for 3:

|1 2 3|

|4 5 6|

|7 8 9|

Starting from 7...

|1 2 3|

|4 5 6|

|**7** 8 9|

7 > 3 so **we move up 1**

|1 2 3|

|**4** 5 6|

|7 8 9|

4 > 3 so **we move up 1**

|**1** 2 3|

|4 5 6|

|7 8 9|

1 < 3 so **we move to the right 1**

|1 **2** 3|

|4 5 6|

|7 8 9|

2 < 3 so **we move to the right 1**

|1 2 **3**|

|4 5 6|

|7 8 9|

3==3 **return the index**

Total of 4 comparisons $(2n - 2) = O(n)$

