**Q:-1**

**Find power of a number**

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Write a program to find x to the power n (i.e. x^n). Take x and n from the user. You need to print the answer.

**Input format :**

Two integers x and n (separated by space)

**Output Format :**

x^n (i.e. x raise to the power n)

**Sample Input 1 :**

3 4

**Sample Output 1 :**

81

**Sample Input 2 :**

2 5

**Sample Output 2 :**

32

**Q:-2**

**Sorting the Skills**

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There is a company named James Peterson & Co. The company has ‘n’ employees. The employees have skills from 0 to n-1. All the employees have distinct skills. The manager of James Peterson & Co. wants to sort the employees on the basis of their skills in ascending order. He is only allowed to swap two employees which are adjacent to each other. He is given the skills of employees in an array of size ‘n’. He can swap the skills as long as the absolute difference between their skills is 1. You need to help the manager out and tell whether it is possible to sort the skills of employees or not.

**Input Format:**

First Line will have an integer ‘t’ denoting the no. of test cases.

First line of each test case contains an integer ‘n’ denoting the no. of employees in the company.

Second line of each test case contains ‘n’ distinct integers in the range [0, n-1].

**Output Format:**

For each test case, print “Yes” if it is possible to sort the skills otherwise “No”.

**Constraints:**

1 <= t <= 10

1 <= n <= 10^5

**Sample Input:**

2

4

1 0 3 2

3

2 1 0

**Sample Output:**

Yes

No

**Explanation:**

In first T.C., [1, 0, 3, 2] -> [0, 1, 3, 2] -> [0, 1, 2, 3]

In second T.C., [2, 1, 0] -> [1, 2, 0] OR [2, 1, 0] -> [2, 0, 1] So, it is impossible to sort.

**Q:-3**

**Collecting the balls**

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There are ‘n’ number of balls in a container. Mr. Sharma and Singh want to took balls out from the container. At each step, Mr. Sharma took ‘k’ balls out of the box and Mr. Singh took one-tenth of the remaining balls. Suppose there are 29 balls at the moment and k=4. Then, Mr. Sharma will take 4 balls and Mr. Singh will take 2 balls (29-4 = 25; 25/10 = 2). If there are less than ‘k’ balls remaining at some moment, then Mr. Sharma will take all the balls which will get the container empty. The process will last till the container becomes empty. Your task is to choose minimal ‘k’ for Mr. Sharma such that Mr. Sharma will take at least half of the balls from the container.

**Input Format:**

Only line of input contains a single integer ‘n’.

**Output Format:**

Print a single integer denoting the minimal value of ‘k’.

**Constraints:**

1 <= n <= 10^18

Time Limit: 1 second

**Sample Input:**

68

**Sample Output:**

3

**Explanation:**

68-3 = 65; 65/10 = 6; 65-6 = 59

59-3 = 56; 56/10 = 5; 56-5 = 51

51-3 = 48; 48/10 = 4; 48-4 = 44

44-3 = 41; 41/10 = 4; 41-4 = 37

…..

…..

…..

6-3 = 3; 3/10 = 0; 3-0 = 3

3-3 = 0; 0/10 = 0; 0-0 = 0

**Q:-4**

**Sudoku Solver**

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Given a 9\*9 sudoku board, in which some entries are filled and others are 0 (0 indicates that the cell is empty), you need to find out whether the Sudoku puzzle can be solved or not i.e. return true or false.

**Input Format :**

9 Lines where ith line contains ith row elements separated by space

**Output Format :**

true or false

**Sample Input :**

9 0 0 0 2 0 7 5 0

6 0 0 0 5 0 0 4 0

0 2 0 4 0 0 0 1 0

2 0 8 0 0 0 0 0 0

0 7 0 5 0 9 0 6 0

0 0 0 0 0 0 4 0 1

0 1 0 0 0 5 0 8 0

0 9 0 0 7 0 0 0 4

0 8 2 0 4 0 0 0 6

**Sample Output :**

true