Rotate Bits

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Given an integer N and an integer D, you are required to write a program to rotate the binary representation of the integer N by D digits to the left as well as right and print the results in decimal values after each of the rotation.

Note: Integer N is stored using 16 bits. i.e. 12 will be stored as 0000.....001100.

Input:
First line of input contains a single integer T which denotes the number of test cases. First line of each test case contains two space separated integers N and D where N denotes the number to be rotated and D denotes the number of digits by which the number is required to be rotated.

Output:
For first line of each test case print the value of number N after rotating it to left by D digits. For second line of each test case print the value of number N after rotating it to the right by D digits.

Constraints:
1<=T<=100
1<=N<=1000
1<=D<=100

Example:
Input:
2
229 3
28 2
Output:
47
188
19
7