Convert To Decimal 2

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	64 megabytes

Given a number N. Print the result of doing the following operation on N:

- Convert N to its **binary** representation.

- Count number of **ones** in the above **binary** representation.

- Print the equivalent **decimal** number that its **binary** representation has only the number of ones that were counted above.

For example: $(10)_{decimal} = (1010)_{binary}$ has **2** ones "11 after converting "11" to decimal number it will become **3**.

Input

First line contains a number T $(1 \leq T \leq 10)$ number of test cases.

Next T lines will contain a number N $(1 \leq N \leq 2^3 1 - 1)$.

Output

For each test case print a single line contains the answer according to the required above.

Example

standard input	standard output
3	3
10	7
7	1
8	

Note

To convert decimal number to binary :

A decimal integer can be converted to binary by dividing it by 2.

Take the quotient, and keep dividing it by 2, until you reach zero.

Each time you perform this division, take note of the remainder. Now reverse the remainders list, and you get the number in binary form

Example to convert 29 to binary

Step	Operation	Result	Remainder
Step 1	29 / 2	14	1
Step 2	14 / 2	7	0
Step 3	7 / 2	3	1
Step 4	3 / 2	1	1
Step 5	1 / 2	0	1

for more details visit this `https://flaviocopes.com/converting-decimal-to-binary/`

To convert from binary to Decimal :

Binary Number − 11101_2

Calculating Decimal Equivalent −

Step	Binary Number	Decimal Number
Step 1	11101_2	$((1 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0))_{10}$
Step 2	11101_2	$(16 + 8 + 4 + 0 + 1)_{10}$
Step 3	11101_2	29_{10}

Second Test Case :

$(7)_{decimal} = (111)_{binary}$ has **3** ones "111 after converting "111" to decimal number it will become **7**.

Third Test Case :

$(8)_{decimal} = (1000)_{binary}$ has **1** one "1 after converting "1" to decimal number it will become **1**.