1141 – Number Transformation

In this problem, you are given an integer number **s**. You can transform any integer number **A** to another integer number **B** by adding **x** to **A**. This **x** is an integer number which is a prime factor of **A** (please note that 1 and **A** are not being considered as a factor of **A**). Now, your task is to find the minimum number of transformations required to transform **s** to another integer number **t**.

Input

Input starts with an integer **T (≤ 500)**, denoting the number of test cases.

Each case contains two integers: **s (1 ≤ s ≤ 100)** and **t (1 ≤ t ≤ 1000)**.

Output

For each case, print the case number and the minimum number of transformations needed. If it's impossible, then print **-1**.

Sample Input	Output for Sample Input
2 6 12 6 13	Case 1: 2 Case 2: -1