**Jumping Frog**

**Input:** Standard Input, **Output:** Standard Output

**Time Limit:** 1 second(s)

**Memory Limit:** 256 megabytes

**Problem Statement:**

There is a row. Rows are numbered from 1 to N,.... A frog is currently at position 1. He has to reach position N.

To reach N, he can do the following operation in each step:

If he is currently at position i, then he can jump to:

1. Position i \* 2 with cost a.
2. Position i ^ 1 with cost b , ‘^’ denotes the bitwise XOR operation.
3. Position i + 1 with cost c.
4. Position i – 1 with cost d.

Find the minimum cost takes for the frog to reach N.

**Input:**

The first line contains one integer **T (1 ≤ T ≤ 100)** — the number of test cases.

Each test case consists of **five** integers **N , a , b , c , d** .

**Constraints:**

**1 <= N <= 105**

**1 <= a , b , c , d <= 109**

**Output:**

Output one integer for each cases — **the minimum cost.**

**Sample Input/Output:**

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 2  8 2 2 1 1  10 4 3 5 4 | 5  15 |