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import java.math.BigInteger;

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.io.IOException;


public class Day83 {

    public static BigInteger MOD = new BigInteger("1000000007");


    public static BigInteger pr(int i, int len, BigInteger v[]) {

        if (2 * i > len)

            return v[i];

        return pr(2 * i, len, v).max(pr(2 * i + 1, len, v)).multiply(v[i]).mod(MOD);

    }


    public static void main(String[] ar) throws IOException {

        BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

        int n, len;

        BigInteger v[];

        String tmp[];


        while ((n = Integer.parseInt(br.readLine())) != 0) {

            len = (1 << n) - 1;

            v = new BigInteger[len + 5];

            tmp = br.readLine().split(" ");

            for (int i = 1; i <= len; i++)

                v[i] = new BigInteger(tmp[i - 1]);


            System.out.println(pr(1, len, v));

        }

    }

}

```