Problem H
Richard Hamming

Time limit: 1 second
Memory limit: 256 megabytes

Problem Description

The Hamming distance $d_H(\vec{v}, \vec{u})$ between two n-dimensional vectors $\vec{v} = (v_1, \ldots, v_n)$ and $\vec{u} = (u_1, \ldots, u_n)$ is defined as $d_H(\vec{v}, \vec{u}) = |\{i : v_i \neq u_i \text{ and } i \in \{1, \ldots, n\}\}|$, i.e., the number of positions at which the corresponding entries are different. For example, the Hamming distance between $(1, 2, 3, 4, 5)$ and $(1, 0, 0, 4, 5)$ is 2, since these two vectors differ only at the second and the third positions. Please write a program to compute the Hamming distance between two n-dimensional vectors.

Input Format

On the first line there is a single integer T ($T \leq 100$) indicating the number of test cases. Each test case consists of three lines. The first line of each test case contains an integer n ($0 < n \leq 50$) indicating the dimension of the vectors. The second line contains n integers $v_1, \ldots, v_n$, and the third line contains n integers $u_1, \ldots, u_n$. You may assume that $v_1, \ldots, v_n, u_1, \ldots, u_n \in \{0, 1, \ldots, 99\}$.

Output Format

For each test case, output the Hamming distance between $(v_1, \ldots, v_n)$ and $(u_1, \ldots, u_n)$.

Sample Input

```
2
3
1 2 3
3 2 1
4
1 0 1 0
1 0 1 1
```

Sample Output

```
2
1
```

Postscript

Richard Hamming won the Turing award in 1968 for his contribution on numerical methods, error detecting codes, and error correcting codes.

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Problem Description

兩個 n 維向量 $\vec{v} = (v_1, \ldots, v_n)$、$\vec{u} = (u_1, \ldots, u_n)$ 的漢明距離 $d_H(\vec{v}, \vec{u})$ 定義為：

$$d_H(\vec{v}, \vec{u}) = |\{i : v_i \neq u_i \text{ and } i \in \{1, \ldots, n\}\}|$$

即兩個向量相異處的數量。舉例來說，$(1, 2, 3, 4, 5)$ 與 $(1, 0, 0, 4, 5)$ 的漢明距離是 2，因為僅在第二與第三個位置是相異的。請撰寫一個程式來計算兩個 n 維向量的漢明距離。

Input Format

測試輸入第一行有一個整數 T $(T \leq 100)$ 代表有多少組測試資料。每一組測試資料有三行。其中第一行有一個整數 n $(0 < n \leq 50)$ 代表向量的維度。第二行有 n 個整數 $v_1, \ldots, v_n$，第三行有 n 個整數 $u_1, \ldots, u_n$。可以假定 $v_1, \ldots, v_n, u_1, \ldots, u_n \in \{0, 1, \ldots, 99\}$。

Output Format

針對每一組測試資料，輸出 $(v_1, \ldots, v_n)$ 與 $(u_1, \ldots, u_n)$ 之間的漢明距離。

Sample Input

```
2
3
1 2 3
3 2 1
4
1 0 1 0
1 0 1 1
```

Sample Output

```
2
1
```

附註

理察・漢明是 1968 年圖靈獎得主，因數值方法、錯誤偵測碼與錯誤更正碼等領域的卓著貢獻，於 1968 年獲得圖靈獎。