DMOPC '18 Contest 5 P0 - A Digital Art Problem

Time limit: 2.0s **Memory limit:** 64M

The **Multiply**, **Screen**, and **Overlay** blend modes in image manipulation programs such as Photoshop are very useful when making digital art. If you apply one of these modes to a **base colour** and a **top colour**, a **resulting colour** is produced. Colours have three components: R, G, and B, which can have any real value from 0 to 1 (completely dark to completely light) inclusive, and modes operate on each component separately. Let's call a component of the base colour X_a and the same component of the top colour X_b.

If you apply the Multiply mode, the resulting component will be X_aX_b. As this produces a darker colour, it is good for drawing shadows.

If you apply the Screen mode, the resulting component will be $1-(1-X_a)(1-X_b)$. As this produces a lighter colour, it is good for drawing highlights.

The Overlay mode produces different results depending on the base component. If this component is less than 0.5, the resulting value is $2X_aX_b$. Otherwise, the resulting value is $1-2(1-X_a)(1-X_b)$. As this makes dark colours darker and light colours lighter, it is good for adding contrast.

Given a blend mode and each component of the base and top colours, please find the resulting colour.

Input Specification

The first line will contain one of the following strings: `Multiply`, `Screen`, or `Overlay`, the blend mode.
The second line will contain 3 space-separated real numbers: R_a, G_a, and B_a representing each component of the base colour.
The third and final line will contain 3 space-separated real numbers: R_b, G_b, and B_b representing each component of the top colour.

Output Specification

Output 3 space-separated real numbers on one line: the R, G, and B of the resulting colour.
Your answer will be judged correct if it has an absolute or relative error less than or equal to 10^{-6}.

Sample Input

```
Multiply
0.30 0.22 0.90
0.52 0.12 0.03
```

Sample Output

```
0.156000 0.026400 0.027000
```