

Problem 3 – Nether Realms

Mighty battle is coming. In the stormy nether realms, demons are fighting against each other for supremacy in a duel from which only one will survive.

Your job, however is not so exciting. You are assigned to **sign in all the participants** in the nether realm's mighty battle's demon book, which of course is **sorted alphabetically**.

A demon's **name contains his health and his damage**.

The **sum of the ascii codes** of **all characters** (excluding numbers (0-9), arithmetic symbols ('+', '-', '*', '/') and delimiter dot ('.')) gives a **demon's total health**.

The **sum of all numbers** in his name forms his base damage. Note that you should consider the plus '+' and minus '-' signs (e.g. **+10 is 10** and **-10 is -10**). However, there are some symbols ('*' and '/') that can further **alter the base damage by multiplying or dividing it by 2** (e.g. in the name "m15*/c-5.0", the base damage is **15 + (-5.0) = 10** and then you need to multiply it by 2 (e.g. $10 * 2 = 20$) and then divide it by 2 (e.g. $20 / 2 = 10$)).

So, **multiplication and division** are applied **only after all numbers are included** in the calculation and **in the order they appear in the name**.

You will get all demons **on a single line**, separated by commas and zero or more blank spaces. Sort them in **alphabetical order** and print their names **along their health and damage**.

Input

The input will be read from the console. The input consists of a **single line** containing all demon names **separated by commas and zero or more spaces** in the format: "{demon name}, {demon name}, ... {demon name}"

Output

Print all demons **sorted by their name in ascending order**, each on a separate line in the format:

- "{demon name} - {health points} health, {damage points} damage"

Constraints

- A demon's name will contain **at least one character**
- A demon's name **cannot contain** blank spaces ' ' or commas ','
- A **floating point number will always have digits before and after its decimal separator**
- Number** in a demon's name is **considered** everything that is a valid integer or floating point number (with dot '.' used as separator). For example, all these are valid numbers: '4', '+4', '-4', '3.5', '+3.5', '-3.5'

Examples

Input	Output	Comments
M3ph-0.5s-0.5t0.0**	M3ph-0.5s-0.5t0.0** - 524 health, 8.00 damage	M3ph-0.5s-0.5t0.0**: Health = 'M' + 'p' + 'h' + 's' + 't' = 524 health. Damage = $(3 + (-0.5) + (-0.5) + 0.0) * 2 * 2 = 8$ damage.
Input	Output	Comments

M3ph1st0**, Azazel	<p>Azazel - 615 health, 0.00 damage</p> <p>M3ph1st0** - 524 health, 16.00 damage</p>	<p>Azazel: Health - 'A' + 'z' + 'a' + 'z' + 'e' + 'l' = 615 health. Damage - no digits = 0 damage.</p> <p>M3ph1st0**: Health - 'M' + 'p' + 'h' + 's' + 't' = 524 health. Damage - (3 + 1 + 0) * 2 * 2 = 16 damage.</p>
Gos/ho	Gos/ho - 512 health, 0.00 damage	