
Picotron, your Grandparents' Favourite Heavy Metal BandP27761_en

While Heavy Metal has found mainstream success over the last decades, bringing to stardom thousands of bands with a sonic palette based on distorted riffs and screaming voices, it stills finds it hard to reach popularity in certain demographics. For instance, recent market studies show that it is sadly still uncommon to see death metal acts perform at retirement homes, depriving our elders from the pleasure of growling vocals.



It is for this that the industry sees with great hopes the rise of *Picotron*, a shier take on heavy metal whose call to fame is based on bold statements like *“Our amplifiers only go to 4—I guess we can get them to 5 if you insist, but you should ask us with pretty please...”* and good ol’ cologne scent that makes their live performances a holistic sensory experience.

Naturally, not everyone agrees with this new take that metal is taking, and comparisons to other bands with stronger sounds like *Kilotron*, *Megatron*, *Tron*, or even *Yottazettapetatron* quickly emerged, criticising the lame sound of *Picotron* and their surrender of values that were uncompromisable up until now.

Can you help the musical press express their comparisons more accurately in this acoustic tug-of-war?

Input

Input consists of several cases, each on its own line and made up of only lowercase letters, with the comparison a musical journalist wants to make, consisting of:

- One or more band names, weighed by a numerical value between 1 and 999, and joined by the word “and”.
- The band name they want to compare them to, preceded by the word “to”.

The number of bands in each comparison will be between 1 and 100. The number of prefixes in each name will be between 0 and 100.

Prefix	Value	Prefix	Value
quetta	10^{30}	quecto	10^{-30}
ronna	10^{27}	ronto	10^{-27}
yotta	10^{24}	yocto	10^{-24}
zetta	10^{21}	zepto	10^{-21}
exa	10^{18}	atto	10^{-18}
peta	10^{15}	femto	10^{-15}
tera	10^{12}	pico	10^{-12}
giga	10^9	nano	10^{-9}
mega	10^6	micro	10^{-6}
kilo	10^3	milli	10^{-3}

Output

For each case, express the value of the left part of the comparison as the number of times the target band it is equivalent to (assuming the prefixes directly correspond to musical quality).

Print the number without unnecessary leading or trailing zeros, and with a dot ‘.’ separating the integer and fractional parts. Don’t include a dot if it isn’t needed either.

Sample input

```
1 kilotron to picotron
1 kilotron to megatron
1 kilotron and 1 megatron to picotron
1 kilotron and 1 megatron and 5 picotron to picotron
450 kilotron and 750 millimegatron to picoexatron
450 kilotron and 750 millimegatron and 50 tron to picoexatron
1 picotron to yottazettapetatron
2 tron to tron
```

Sample output

[illegible]

Problem information

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