

Question

10 Pf = 0,1 DM = 0,5 DM * 0,2 DM = 50 Pf * 20 Pf = 1000 Pf = 10 DM.

Where is the bug?

Answer

Obviously the sequence of equations is wrong. We have got a sequence of equations connecting quantities and arithmetic terms.

The following table shows this faulty sequence of equations line by line next to the correct version:

line	false	correct
1	10 Pf	10 Pf
2	= 0,1 DM	= 0,1 DM
3	= 0,5 DM * 0,2 DM	= 0,5 DM * 0,2
4	= 50 Pf * 20 Pf	= 50 Pf * 0,2
5	= 1000 Pf	= 10 Pf
6	= 10 DM	

This comparison clearly displays the problem:

In column "false" line 3 is multiplied by error function $f_1 = 1 \text{ DM}$, in line 5 it is divided by error function $f_2 = 1 \text{ Pf}$.

In all, the sequence of equations is multiplied by **factor**

$f_1 / f_2 = 1 \text{ DM} / 1 \text{ Pf} = \mathbf{100}$. So 10 Pf result in 10 DM at the end.

Note: You may also play through this problem using other units, e.g., cm und m.

Further information on Größe, Dimension, Einheit, Größengleichung, zugeschnittene Größengleichung, Einheitengleichung, Zahlenwertgleichung can be found in DIN 1313 "Größen".