

9. Let \mathbb{R}^{pos} be the set of positive real numbers. Define $*$ on \mathbb{R}^{pos} by $a*b = a/b$.
Is $(\mathbb{R}^{\text{pos}}, *)$ a group? Why or why not?

No Associativity fails: $1*(1*2) = 1*(\frac{1}{2}) = \frac{1}{\frac{1}{2}} = 2$, but

$$(1*1)*2 = (1/1)*2 = 1*2 = \frac{1}{2}$$

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