

Commutators Commute

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2:14 PM

should commutators commute ($[[a,b],[c,d]] = 1$) for

$$a = \cancel{1} | | | \quad b = \cancel{1} | | | \quad c = \cancel{1} | | | \quad d = \cancel{1} | | | \quad ?$$

$$x = [a,b] = \text{stuff with } \cancel{1} | | |$$

$$y = [c,d] = \text{stuff with } \cancel{1} | | |$$

$$[x,y] = \text{stuff with } \begin{array}{c} | \leftarrow | \leftarrow | \leftarrow | \\ | \leftarrow | \leftarrow | \leftarrow | \\ | \leftarrow | \leftarrow | \leftarrow | \end{array}$$

\Rightarrow need not vanish!