[12pt]article amsmath, amssymb, xcolor [margin=1in]geometry

Vector Space Proof Demonstration

Generated by the Khwarizmi Symbolic System

Goal: Prove that $1(u + v) = u + v$.

Proof:

$$
\begin{aligned}
&(2)\ 1 \cdot (u + v) = (1 \cdot u + 1 \cdot v) && [VS\_Distrib\_Vector] \\
&(3)\ 1 \cdot u = u && [VS\_Scalar\_Id] \\
&(3a)\ 1 \cdot v = v && [VS\_Scalar\_Id] \\
&(3b)\ (1 \cdot u + 1 \cdot v) = (u + v) && [VS\_Scalar\_Id]
\end{aligned}
$$

Hence, $(u + v) = u + v$

Proof log automatically generated by Khwarizmi. All transformations follow registered axioms.