

Vector Space Proof Demonstration

Generated by the Khwarizmi Symbolic System

Goal: Prove that $(2 \cdot (u + 0) + -1 \cdot u) = u$

Start: $(u + 0)$

$$(1) \quad (u + 0) = u \quad [VS_Add_Id]$$

$$(1a) \quad 2 \cdot (u + 0) = 2 \cdot u \quad [VS_Add_Id]$$

$$(1b) \quad (2 \cdot (u + 0) + -1 \cdot u) = (2 \cdot u + -1 \cdot u) \quad [VS_Add_Id]$$

$$(2) \quad (2 \cdot u + -1 \cdot u) = (2 + -1) \cdot u \quad [VS_Factor_Scalar]$$

$$(3) \quad (2 + -1) = 1 \quad [Scalar_Arith]$$

$$(3a) \quad (2 + -1) \cdot u = 1 \cdot u \quad [Scalar_Arith]$$

$$(4) \quad 1 \cdot u = u \quad [VS_Scalar_Id]$$

Final Result: u

Q.E.D.