

t33_gcd_1

(TMZ4FwErNLd7rPL1hM5muwsHXfbYbA5YToS)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v6_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v5_group_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v1_vectsp_2 : \iota \Rightarrow o$ be given. Let $v3_gcd_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $m2_gcd_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_gcd_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_vectsp_1 : \iota \Rightarrow o$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_gcd_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_struct_0 : \iota \Rightarrow \iota$ be given. Let $v3_vectsp_1 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $r2_gcd_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_gcd_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $v6_vectsp_1 : \iota \Rightarrow o$ be given. Let $v1_vectsp_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_rlvect_1 \\ & X0) \wedge ((v4_rlvect_1 X0) \wedge ((v2_vectsp_1 X0) \wedge (l6_algstr_0 X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k6_algstr_0 X0 \\ & (k4_struct_0 X0) X1 = k4_struct_0 X0)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((\\ & v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\ & X0) \wedge ((v1_vectsp_2 X0) \wedge ((v3_gcd_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\ & (\forall X1. (m2_gcd_1 X1 X0) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 \\ & X0)) \Rightarrow ((k5_gcd_1 X0 X1 X2 (k4_struct_0 X0) = k4_gcd_1 X0 X1 X2) \wedge (k5_gcd_1 \\ & X0 X1 (k4_struct_0 X0) X2 = k4_gcd_1 X0 X1 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v3_group_1 \\ X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge \\ (v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v1_vectsp_2 \\ X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1.(m2_gcd_1 X1 X0) \Rightarrow \\ ((k4_gcd_1 X0 X1 (k4_struct_0 X0) = k4_struct_0 X0) \wedge (k4_gcd_1 X0 \\ X1 (k5_struct_0 X0) = k5_struct_0 X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v3_vectsp_1 \\ X0) \wedge (l4_algstr_0 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r2_gcd_1 X0 X1 X2) \Leftrightarrow (r1_gcd_1 \\ X0 X1 X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v3_gcd_1 X0) \wedge (l4_algstr_0 \\ X0)))))) \wedge ((m2_gcd_1 X1 X0) \wedge ((m1_subset_1 X2 (u1_struct_0 X0)) \wedge \\ (m1_subset_1 X3 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k5_gcd_1 \\ X0 X1 X2 X3) (u1_struct_0 X0)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0)) \Rightarrow ((r1_gcd_1 X0 X1 X2) \Leftrightarrow (\exists X3.(m1_subset_1 \\ X3 (u1_struct_0 X0)) \wedge (X2 = k6_algstr_0 X0 X1 X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_group_1 X0) \wedge ((v4_vectsp_1 \\
& X0) \wedge ((v3_gcd_1 X0) \wedge (l4_algstr_0 X0)))))) \Rightarrow (\forall X1.(m2_gcd_1 \\
& X1 X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& (u1_struct_0 X0)) \Rightarrow ((X4 = k5_gcd_1 X0 X1 X2 X3) \Leftrightarrow ((X4 \in X1) \wedge ((r2_gcd_1 \\
& X0 X4 X2) \wedge ((r2_gcd_1 X0 X4 X3) \wedge (\forall X5.(m1_subset_1 X5 (u1_struct_0 \\
& X0)) \Rightarrow ((r2_gcd_1 X0 X5 X2) \wedge (r2_gcd_1 X0 X5 X3)) \Rightarrow (r2_gcd_1 X0 X5 \\
& X4))))))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l4_algstr_0 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v4_vectsp_1 \\
& X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_vectsp_1 X0) \wedge (v6_vectsp_1 X0))))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l6_algstr_0 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v5_vectsp_1 \\
& X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v1_vectsp_1 X0) \wedge (v2_vectsp_1 X0))))
\end{aligned} \tag{12}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((\\
& v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\
& X0) \wedge ((v1_vectsp_2 X0) \wedge ((v3_gcd_1 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow \\
& (\forall X1.(m2_gcd_1 X1 X0) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((k5_gcd_1 \\
& X0 X1 X2 X3 = k4_struct_0 X0) \Leftrightarrow ((X2 = k4_struct_0 X0) \wedge (X3 = k4_struct_0 \\
& X0))))))
\end{aligned}$$