

t19_goboard9 (TMXFDe- tQbzZE9PmRkHqhNWi1h7adXN1QY9S)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v3_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k15_euclid : \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $v1_topreal1 : \iota \Rightarrow o$ be given. Let $v2_topreal1 : \iota \Rightarrow o$ be given. Let $v1_goboard5 : \iota \Rightarrow o$ be given. Let $v2_goboard5 : \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $v1_convex1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_goboard5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_relat_1 : \iota \Rightarrow o$ be given. Let $v1_matrix_1 : \iota \Rightarrow o$ be given. Let $v2_goboard1 : \iota \Rightarrow o$ be given. Let $v3_goboard1 : \iota \Rightarrow o$ be given. Let $v4_goboard1 : \iota \Rightarrow o$ be given. Let $v5_goboard1 : \iota \Rightarrow o$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $k1_matrix_1 : \iota \Rightarrow \iota$ be given. Let $k3_goboard5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_goboard2 : \iota \Rightarrow \iota$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m2_subset_1 X0 k1_numbers k5_numbers) \Rightarrow (\forall X1. \\
 & (m2_subset_1 X1 k1_numbers k5_numbers) \Rightarrow (\forall X2. ((\neg v3_relat_1 \\
 & X2) \wedge ((v1_matrix_1 X2) \wedge ((v2_goboard1 X2) \wedge ((v3_goboard1 X2) \wedge \\
 & ((v4_goboard1 X2) \wedge ((v5_goboard1 X2) \wedge (m2_finseq_1 X2 (k3_finseq_2 \\
 & (u1_struct_0 (k15_euclid np_2)))))))))) \Rightarrow (((r1_xxreal_0 X0 \\
 & (k3_finseq_1 X2) \wedge (r1_xxreal_0 X1 (k1_matrix_1 X2))) \Rightarrow (v1_convex1 \\
 & (k1_tops_1 (k15_euclid np_2) (k3_goboard5 X2 X0 X1)) (k15_euclid \\
 & np_2))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0) \wedge ((\neg v3_funct_1 X0) \wedge ((v1_finseq_6 \\
& X0 (u1_struct_0 (k15_euclid np_2))) \wedge ((v1_topreal1 X0) \wedge ((v2_topreal1 \\
& X0) \wedge ((v1_goboard5 X0) \wedge ((v2_goboard5 X0) \wedge (m2_finseq_1 X0 (u1_struct_0 \\
& (k15_euclid np_2)))))))))) \Rightarrow (\forall X1.(m2_subset_1 X1 k1_numbers \\
& k5_numbers) \Rightarrow (\neg(r1_xxreal_0 np_1 X1) \wedge (r1_xxreal_0 (k2_nat_1 \\
& X1 np_1) (k3_finseq_1 X0)) \wedge (\forall X2.(m2_subset_1 X2 k1_numbers \\
& k5_numbers) \Rightarrow (\forall X3.(m2_subset_1 X3 k1_numbers k5_numbers) \Rightarrow \\
& (\neg(r1_xxreal_0 X2 (k3_finseq_1 (k2_goboard2 X0))) \wedge ((r1_xxreal_0 \\
& X3 (k1_matrix_1 (k2_goboard2 X0))) \wedge (k3_goboard5 (k2_goboard2 \\
& X0) X2 X3 = k5_goboard5 X0 X1)))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (m2_finseq_1 X1 X0) \Leftrightarrow (m1_finseq_1 X1 X0) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0) \wedge (m1_finseq_1 X0 (u1_struct_0 (\\
& k15_euclid np_2)))) \Rightarrow ((\neg v3_relat_1 (k2_goboard2 X0)) \wedge ((v1_matrix_1 \\
& (k2_goboard2 X0)) \wedge ((v2_goboard1 (k2_goboard2 X0)) \wedge ((v3_goboard1 \\
& (k2_goboard2 X0)) \wedge ((v4_goboard1 (k2_goboard2 X0)) \wedge (v5_goboard1 \\
& (k2_goboard2 X0)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0) \wedge (m1_finseq_1 X0 (u1_struct_0 (\\
& k15_euclid np_2)))) \Rightarrow ((v1_matrix_1 (k2_goboard2 X0)) \wedge (m2_finseq_1 \\
& (k2_goboard2 X0) (k3_finseq_2 (u1_struct_0 (k15_euclid np_2))))))
\end{aligned} \tag{5}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0) \wedge ((\neg v3_funct_1 X0) \wedge ((v1_finseq_6 \\
& X0 (u1_struct_0 (k15_euclid np_2))) \wedge ((v1_topreal1 X0) \wedge ((v2_topreal1 \\
& X0) \wedge ((v1_goboard5 X0) \wedge ((v2_goboard5 X0) \wedge (m2_finseq_1 X0 (u1_struct_0 \\
& (k15_euclid np_2)))))))))) \Rightarrow (\forall X1.(m2_subset_1 X1 k1_numbers \\
& k5_numbers) \Rightarrow (((r1_xxreal_0 np_1 X1) \wedge (r1_xxreal_0 (k2_nat_1 \\
& X1 np_1) (k3_finseq_1 X0))) \Rightarrow (v1_convex1 (k1_tops_1 (k15_euclid \\
& np_2) (k5_goboard5 X0 X1)) (k15_euclid np_2))))))
\end{aligned}$$