

t23_topreal4
(TMHrTGS9Y8TvD27h7AFEitSdHjeURaQkA1q)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ 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 $k1_numbers : \iota$ be given. Let $k14_euclid : \iota \Rightarrow \iota$ be given. Let $r1_topreal4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $v4_topreal1 : \iota \Rightarrow o$ be given. Let $k3_topreal1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski X0 X1) \wedge (r1_tarski X2 X1)) \Rightarrow (r1_tarski (k2_xboole_0 X0 X2) X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X1.(m2_finseq_1 X1 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 (k14_euclid np_2))) \Rightarrow (\neg(\neg k7_partfun1 (u1_struct_0 \\
& (k15_euclid np_2)) X1 np_1 \in k9_metric_1 (k14_euclid np_2) X3 \\
& X2) \wedge ((k7_partfun1 (u1_struct_0 (k15_euclid np_2)) X1 (k3_finseq_1 \\
& X1) \in k9_metric_1 (k14_euclid np_2) X3 X2) \wedge ((X0 \in k9_metric_1 (\\
& k14_euclid np_2) X3 X2) \wedge (v4_topreal1 X1) \wedge (\neg X0 \in k3_topreal1 \\
& np_2 X1) \wedge (\forall X4.(m2_finseq_1 X4 (u1_struct_0 (k15_euclid \\
& np_2)))) \Rightarrow (\neg(r1_topreal4 (k3_topreal1 np_2 X4) (k7_partfun1 \\
& (u1_struct_0 (k15_euclid np_2)) X1 np_1) X0) \wedge (r1_tarski (k3_topreal1 \\
& np_2 X4) (k2_xboole_0 (k3_topreal1 np_2 X1) (k9_metric_1 (k14_euclid \\
& np_2) X3 X2))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1_tarski X0 X1) \wedge (r1_tarski X1 X2)) \Rightarrow (r1_tarski X0 X2) \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X1.(m2_finseq_1 X1 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\neg(X0 \neq k7_partfun1 (u1_struct_0 (k15_euclid np_2)) X1 np_1) \wedge \\
& ((v4_topreal1 X1) \wedge ((X0 \in k3_topreal1 np_2 X1) \wedge (\forall X2.(m2_finseq_1 \\
& X2 (u1_struct_0 (k15_euclid np_2)))) \Rightarrow (\neg(v4_topreal1 X2) \wedge ((k7_partfun1 \\
& (u1_struct_0 (k15_euclid np_2)) X2 np_1 = k7_partfun1 (u1_struct_0 \\
& (k15_euclid np_2)) X1 np_1) \wedge ((k7_partfun1 (u1_struct_0 (k15_euclid \\
& np_2)) X2 (k3_finseq_1 X2) = X0) \wedge ((r1_topreal4 (k3_topreal1 np_2 \\
& X2) (k7_partfun1 (u1_struct_0 (k15_euclid np_2)) X1 np_1) X0) \wedge \\
& (r1_tarski (k3_topreal1 np_2 X2) (k3_topreal1 np_2 X1))))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid np_2))) \Rightarrow \\
& (\forall X2.(m1_subset_1 X2 k1_numbers) \Rightarrow (\forall X3.(m1_subset_1 \\
& X3 (u1_struct_0 (k14_euclid np_2))) \Rightarrow (\neg(X0 \neq X1) \wedge ((X0 \in k9_metric_1 \\
& (k14_euclid np_2) X3 X2) \wedge ((X1 \in k9_metric_1 (k14_euclid np_2) \\
& X3 X2) \wedge (\forall X4.(m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 \\
& (k15_euclid np_2)))) \Rightarrow (\neg(r1_topreal4 X4 X0 X1) \wedge (r1_tarski X4 \\
& (k9_metric_1 (k14_euclid np_2) X3 X2))))))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow ((r1_topreal4 X0 X1 X2) \Leftrightarrow (\exists X3.(m2_finseq_1 X3 \\
& (u1_struct_0 (k15_euclid np_2))) \wedge ((v4_topreal1 X3) \wedge ((X0 = k3_topreal1 \\
& \quad np_2 X3) \wedge ((X1 = k7_partfun1 (u1_struct_0 (k15_euclid np_2)) \\
& \quad X3 np_1) \wedge (X2 = k7_partfun1 (u1_struct_0 (k15_euclid np_2)) X3 \\
& \quad (k3_finseq_1 X3))))))))))
\end{aligned} \tag{8}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\forall X4.(m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 \\
& (k15_euclid np_2)))) \Rightarrow (\forall X5.(m1_subset_1 X5 k1_numbers) \Rightarrow \\
& \quad (\forall X6.(m1_subset_1 X6 (u1_struct_0 (k14_euclid np_2)))) \Rightarrow \\
& (\neg(X1 \neq X2) \wedge ((r1_topreal4 X4 X2 X3) \wedge ((r1_tarski X4 X0) \wedge ((X1 \in k9_metric_1 \\
& \quad (k14_euclid np_2) X6 X5) \wedge ((X3 \in k9_metric_1 (k14_euclid np_2) \\
& \quad X6 X5) \wedge ((r1_tarski (k9_metric_1 (k14_euclid np_2) X6 X5) X0) \wedge \\
& \quad (\forall X7.(m1_subset_1 X7 (k1_zfmisc_1 (u1_struct_0 (k15_euclid \\
& \quad np_2)))) \Rightarrow (\neg(r1_topreal4 X7 X2 X1) \wedge (r1_tarski X7 X0))))))))))
\end{aligned}$$