

t8_tops_4 (TMLwizSJExGPyPrHHF- bGD7qRsTEfucTnCXP)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k15_euclid : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_t_0topsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v2_xreal_0 : \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_topreal9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_euclid : \iota \Rightarrow \iota$ be given. Let $v6_metric_1 : \iota \Rightarrow o$ be given. Let $v7_metric_1 : \iota \Rightarrow o$ be given. Let $v8_metric_1 : \iota \Rightarrow o$ be given. Let $v9_metric_1 : \iota \Rightarrow o$ be given. Let $l1_metric_1 : \iota \Rightarrow o$ be given. Let $k3_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_pre_topc : \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_monoid_0 : \iota \Rightarrow o$ be given. Let $v5_rltopsp1 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ 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 $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $v1_metric_1 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $g1_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_rlvect_1 : \iota \Rightarrow \iota$ be given. Let $k10_funcsdom : \iota \Rightarrow \iota$ be given. Let $k2_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k2_pcomps_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (u1_struct_0 (k14_euclid X0) = u1_struct_0 (k15_euclid X0)) \quad (1)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v6_metric_1 X1) \wedge ((v7_metric_1 \\
& X1) \wedge ((v8_metric_1 X1) \wedge ((v9_metric_1 X1) \wedge (l1_metric_1 X1)))))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u1_struct_0 (k3_pcomps_1 \\
& X1)) (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 (k3_pcomps_1 X1)) (u1_struct_0 X0)))))) \Rightarrow ((v1.t_0topsp \\
& X2 (k3_pcomps_1 X1) X0) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X1)) \Rightarrow (\forall X4.((v1_xreal_0 X4) \wedge (v2_xxreal_0 X4)) \Rightarrow (\exists X5. \\
& ((v3_pre_topc X5 X0) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (u1_struct_0 \\
& X0)))) \wedge ((k1_funct_1 X2 X3 \in X5) \wedge (r1_tarski X5 (k7_relset_1 (u1_struct_0 \\
& (k3_pcomps_1 X1)) (u1_struct_0 X0) X2 (k9_metric_1 X1 X3 X4)))))))))) \Rightarrow \\
& \quad \quad \quad (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\
& ((v2_pre_topc X1) \wedge (l1_pre_topc X1)) \Rightarrow (\forall X2.((v2_pre_topc \\
& X2) \wedge (l1_pre_topc X2)) \Rightarrow (\forall X3.((v2_pre_topc X3) \wedge (l1_pre_topc \\
& X3)) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 \\
& X0) (u1_struct_0 X2)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X2)))))) \Rightarrow (\forall X5.((v1_funct_1 \\
& X5) \wedge ((v1_funct_2 X5 (u1_struct_0 X1) (u1_struct_0 X3)) \wedge (m1_subset_1 \\
& X5 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X3)))))) \Rightarrow \\
& (((g1_pre_topc (u1_struct_0 X0) (u1_pre_topc X0) = g1_pre_topc \\
& (u1_struct_0 X1) (u1_pre_topc X1)) \wedge ((g1_pre_topc (u1_struct_0 \\
& X2) (u1_pre_topc X2) = g1_pre_topc (u1_struct_0 X3) (u1_pre_topc \\
& X3)) \wedge ((X4 = X5) \wedge (v1.t_0topsp X4 X0 X2)))) \Rightarrow (v1.t_0topsp X5 X1 X3)))))) \Rightarrow \\
& \quad \quad \quad (3)
\end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k5_numbers) \Rightarrow (\forall X1.(v1_xreal_0 \\
& X1) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k15_euclid X0))) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k14_euclid X0))) \Rightarrow (\\
& (X2 = X3) \Rightarrow (k9_metric_1 (k14_euclid X0) X3 X1 = k1_topreal9 X0 X2 X1)))))) \Rightarrow \\
& \quad \quad \quad (5)
\end{aligned}$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 \\ & X0)))\Rightarrow(\forall X2.\forall X3.(g1_pre_topc X0 X1 = g1_pre_topc \\ & X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0)\Rightarrow((v2_monoid_0 (k15_euclid X0))\wedge \\ & (v5_rltopsp1 (k15_euclid X0))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0)\Rightarrow((v2_pre_topc (k15_euclid X0))\wedge \\ & ((v13_algstr_0 (k15_euclid X0))\wedge((v2_rlvect_1 (k15_euclid X0))\wedge \\ & ((v3_rlvect_1 (k15_euclid X0))\wedge((v4_rlvect_1 (k15_euclid X0))\wedge \\ & ((v5_rlvect_1 (k15_euclid X0))\wedge((v6_rlvect_1 (k15_euclid X0))\wedge \\ & ((v7_rlvect_1 (k15_euclid X0))\wedge((v8_rlvect_1 (k15_euclid X0))\wedge \\ & (v5_rltopsp1 (k15_euclid X0)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0)\Rightarrow((\neg v2_struct_0 (k14_euclid X0))\wedge \\ & ((v1_metric_1 (k14_euclid X0))\wedge((v6_metric_1 (k14_euclid X0))\wedge \\ & ((v7_metric_1 (k14_euclid X0))\wedge((v8_metric_1 (k14_euclid X0))\wedge \\ & (v9_metric_1 (k14_euclid X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 \\ & (u1_struct_0 X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_metric_1 X0)\Rightarrow((v1_pre_topc (k3_pcomps_1 X0))\wedge \\ & (v2_pre_topc (k3_pcomps_1 X0))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_pre_topc X0)\Rightarrow(m1_subset_1 (u1_pre_topc X0) (k1_zfmisc_1 \\ & (k1_zfmisc_1 (u1_struct_0 X0)))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_rltopsp1 X0)\Rightarrow((l1_rlvect_1 X0)\wedge(l1_pre_topc X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0) \Rightarrow (l1_struct_0 X0) \quad (16)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0) \Rightarrow (l1_pre_topc (k3_pcomps_1 X0)) \quad (17)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow ((v5_rltopsp1 (k15_euclid X0)) \wedge (l1_rltopsp1 (k15_euclid X0))) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow & ((v1_metric_1 (k14_euclid X0)) \wedge \\ & ((v6_metric_1 (k14_euclid X0)) \wedge ((v7_metric_1 (k14_euclid X0)) \wedge \\ & ((v8_metric_1 (k14_euclid X0)) \wedge ((v9_metric_1 (k14_euclid X0)) \wedge \\ & (l1_metric_1 (k14_euclid X0)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow & (\forall X1.((v5_rltopsp1 X1) \wedge (l1_rltopsp1 X1)) \Rightarrow \\ & ((X1 = k15_euclid X0) \Leftrightarrow ((g1_pre_topc (u1_struct_0 X1) (u1_pre_topc X1) = k3_pcomps_1 (k14_euclid X0)) \wedge (g1_rlvect_1 \\ & (u1_struct_0 X1) (u2_struct_0 X1) (u1_algstr_0 X1) (u1_rlvect_1 X1) = k10_funcsdom (k2_finseq_1 X0)))))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0) \Rightarrow (k3_pcomps_1 X0 = g1_pre_topc (u1_struct_0 X0) (k2_pcomps_1 X0)) \quad (21)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Leftrightarrow (X0 \in k4_ordinal1) \quad (22)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow ((v1_pre_topc X0) \Rightarrow (X0 = g1_pre_topc (u1_struct_0 X0) (u1_pre_topc X0))) \quad (23)$$

Theorem 1

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow & (\forall X1.((\neg v2_struct_0 X1) \wedge \\ & ((v2_pre_topc X1) \wedge (l1_pre_topc X1))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 (u1_struct_0 (k15_euclid X0)) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 \\ & (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 (k15_euclid X0)) (u1_struct_0 X1)))))) \Rightarrow \\ & ((v1_t_0topsp X2 (k15_euclid X0) X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k15_euclid X0))) \Rightarrow \\ & (\forall X4.((v1_xreal_0 X4) \wedge (v2_xxreal_0 X4)) \Rightarrow (\exists X5. \\ & ((v3_pre_topc X5 X1) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (u1_struct_0 X1)))) \wedge \\ & ((k3_funct_2 (u1_struct_0 (k15_euclid X0)) (u1_struct_0 X1) X2 X3 \in X5) \wedge (r1_tarski X5 \\ & (k7_relset_1 (u1_struct_0 (k15_euclid X0)) (u1_struct_0 X1) X2 (k1_topreal9 X0 X3 X4)))))))))) \end{aligned}$$