

t31_topalg_6

(TMWiqGj899x1NeG9sxMJK6ktqrKMi1Urdiy)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v7_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_topalg_6 : \iota \Rightarrow \iota$ be given. Let $k2_topalg_6 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_topalg_6 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_membered : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xxreal_2 : \iota \Rightarrow \iota$ be given. Let $k1_xxreal_2 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k1_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v5_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Let $v6_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v2_membered X0) \Rightarrow ((\neg v1_xboole_0 X0) \Leftrightarrow (r1_xxreal_0 (k2_xxreal_2 X0) (k1_xxreal_2 X0))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((X0 \in k9_xtuple_0 X1) \Rightarrow (k1_funct_1 X1 X0 \in k10_xtuple_0 X1)) \quad (2)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. ((v7_topalg_6 X1 X0) \wedge (m2_subset_1 X1 (k4_partfun1 k1_numbers (k2_struct_0 X0) (k1_topalg_6 X0)))) \Rightarrow (k9_xtuple_0 X1 = k1_rcomp_1 (k2_xxreal_2 (k9_xtuple_0 X1)) (k1_xxreal_2 (k9_xtuple_0 X1)))) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xreal_0 X2) \Rightarrow ((X0 \in k1_xreal_1 X1 X2) \Leftrightarrow ((r1_xreal_0 X1 X0) \wedge \\ & (r1_xreal_0 X0 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (r1_xreal_0 X0 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (k1_rcomp_1 X0 X1 = k1_xreal_1 X0 X1) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((v5_topalg_6 X1 X0) \wedge (m1_subset_1 X1 (k1_topalg_6 X0)))) \Rightarrow (\neg v1_xboole_0 \\ & (k9_xtuple_0 X1)) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((l1_pre_topc X0) \wedge (m1_subset_1 X1 (k1_topalg_6 X0))) \Rightarrow (v3_membered (k9_xtuple_0 X1)) \quad (9)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\neg v1_xboole_0 (k1_topalg_6 X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.v4_funct_1 (k4_partfun1 X0 X1) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\neg v1_xboole_0 (k4_partfun1 X0 X1) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((v6_topalg_6 X1 X0) \wedge (m1_subset_1 X1 (k1_topalg_6 X0)))) \Rightarrow ((v1_xreal_0 \\ & (k1_xreal_2 (k9_xtuple_0 X1))) \wedge (v1_xreal_0 (k1_xreal_2 (\\ & k9_xtuple_0 X1)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((v5_topalg_6 X1 X0) \wedge (m1_subset_1 X1 (k1_topalg_6 X0)))) \Rightarrow ((v1_xreal_0 \\ & (k2_xxreal_2 (k9_xtuple_0 X1))) \wedge (v1_xxreal_0 (k2_xxreal_2 (\\ & k9_xtuple_0 X1)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (m1_subset_1 (k1_topalg_6 X0) (k1_zfmisc_1 (k4_partfun1 k1_numbers (k2_struct_0 X0)))) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v5_topalg_6 X1 X0) \wedge (m2_subset_1 X1 (k4_partfun1 k1_numbers \\ & (k2_struct_0 X0)) (k1_topalg_6 X0))) \Rightarrow (k2_topalg_6 X0 X1 = k1_funct_1 \\ & X1 (k2_xxreal_2 (k9_xtuple_0 X1)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v6_topalg_6 X1 X0) \wedge (m2_subset_1 X1 (k4_partfun1 k1_numbers \\ & (k2_struct_0 X0)) (k1_topalg_6 X0))) \Rightarrow (k3_topalg_6 X0 X1 = k1_funct_1 \\ & X1 (k1_xxreal_2 (k9_xtuple_0 X1)))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_topalg_6 X0)) \Rightarrow ((v7_topalg_6 X1 X0) \Rightarrow ((v5_topalg_6 X1 X0) \wedge (v6_topalg_6 X1 X0)))) \quad (18)$$

Assume the following.

$$\forall X0. (v4_funct_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v4_funct_1 X1)) \quad (19)$$

Assume the following.

$$\forall X0. (v4_funct_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 X0) \Rightarrow ((v1_relat_1 X1) \wedge (v1_funct_1 X1))) \quad (20)$$

Assume the following.

$$\forall X0. (v3_membered X0) \Rightarrow (v2_membered X0) \quad (21)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v7_topalg_6 X1 X0) \wedge (m2_subset_1 X1 (k4_partfun1 k1_numbers \\ & (k2_struct_0 X0)) (k1_topalg_6 X0))) \Rightarrow ((k2_topalg_6 X0 X1 \in k10_xtuple_0 \\ & X1) \wedge (k3_topalg_6 X0 X1 \in k10_xtuple_0 X1))) \end{aligned}$$