

t24\_simplex0  
(TMZdhuShQgNJg9Jv7QuwaD8Lnz4tZA3ZzTk)

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Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. 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  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_xxreal\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_simplex0 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xxreal\_0 : \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  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  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k2\_xxreal\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_pencil\_1 : \iota \Rightarrow o$  be given. Let  $u1\_pre\_topc : \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v4\_matroid0 : \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_xxreal\_3 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (r1\_xxreal\_0 X0 k1\_xxreal\_0) \quad (2)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (3)$$

Assume the following.

$$v1\_xxreal\_0 k1\_xxreal\_0 \quad (4)$$

Assume the following.

$$\neg v1\_xreal\_0 k2\_xxreal\_0 \quad (5)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (v1\_xxreal\_0 (k6\_simplex0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (m1\_subset\_1 (k5\_card\_1 X0) k4\_ordinal1) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0) \Rightarrow ((v3\_pencil\_1 X0) \Leftrightarrow (v1\_xboole\_0 (u1\_pre\_topc X0))) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\forall X2. \\ (v1\_xxreal\_0 X2) \Rightarrow (((v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \Rightarrow ((X2 = \\ k1\_xxreal\_3 X0 X1) \Leftrightarrow (\exists X3.(v1\_xcmplx\_0 X3) \wedge (\exists X4. \\ (v1\_xcmplx\_0 X4) \wedge ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = k2\_xcmplx\_0 X3 X4)))))) \wedge \\ (((((X0 = k1\_xxreal\_0) \wedge (X1 \neq k2\_xxreal\_0)) \vee ((X1 = k1\_xxreal\_0) \wedge \\ (X0 \neq k2\_xxreal\_0))) \Rightarrow ((X2 = k1\_xxreal\_3 X0 X1) \Leftrightarrow (X2 = k1\_xxreal\_0)) \wedge \\ (((((X0 = k2\_xxreal\_0) \wedge (X1 \neq k1\_xxreal\_0)) \vee ((X1 = k2\_xxreal\_0) \wedge \\ (X0 \neq k1\_xxreal\_0))) \Rightarrow ((X2 = k1\_xxreal\_3 X0 X1) \Leftrightarrow (X2 = k2\_xxreal\_0)) \wedge \\ (\neg(\neg(v1\_xxreal\_0 X0) \wedge (v1\_xxreal\_0 X1)) \wedge (\neg(X0 = k1\_xxreal\_0) \wedge \\ (X1 \neq k2\_xxreal\_0)) \wedge (\neg(X1 = k1\_xxreal\_0) \wedge (X0 \neq k2\_xxreal\_0)) \wedge \\ ((\neg(X0 = k2\_xxreal\_0) \wedge (X1 \neq k1\_xxreal\_0)) \wedge (\neg(X1 = k2\_xxreal\_0) \wedge \\ (X0 \neq k1\_xxreal\_0)) \wedge (\neg(X2 = k1\_xxreal\_3 X0 X1) \Leftrightarrow (X2 = k6\_numbers)))))))))) \wedge \\ (9) \end{aligned}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow ((v3\_pre\_topc X1 X0) \Leftrightarrow (X1 \in u1\_pre\_topc X0))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (( \\ (v4\_matroid0 X0) \Rightarrow ((v3\_pencil\_1 X0) \vee ((X1 = k6\_simplex0 X0) \Leftrightarrow (( \\ \forall X2.((v1\_finset\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0)))) \Rightarrow ((v3\_pre\_topc X2 X0) \Rightarrow (r1\_xxreal\_0 (k5\_card\_1 X2) (k1\_xxreal\_3 \\ X1 np\_1)))))) \wedge (\exists X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ X0))) \wedge ((v3\_pre\_topc X2 X0) \wedge (k1\_card\_1 X2 = k1\_xxreal\_3 X1 np\_1)))))) \wedge \\ (((v3\_pencil\_1 X0) \Rightarrow ((X1 = k6\_simplex0 X0) \Leftrightarrow (X1 = k2\_xxreal\_3 np\_1))) \wedge \\ (\neg(\neg(\neg(v3\_pencil\_1 X0) \wedge (v4\_matroid0 X0)) \wedge (\neg(v3\_pencil\_1 X0) \wedge \\ (\neg(X1 = k6\_simplex0 X0) \Leftrightarrow (X1 = k1\_xxreal\_0)))))) \wedge \\ (11) \end{aligned}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0) \Rightarrow (v1\_xxreal\_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(v1\_xxreal\_0\ X0) \quad (14)$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(v1\_xxreal\_0\ X0) \quad (15)$$

**Theorem 1**

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.((v1\_finset\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\Rightarrow((v3\_pre\_topc\ X1\ X0)\Rightarrow(r1\_xxreal\_0\ (k5\_card\_1\ X1)\ (k1\_xxreal\_3\ (k6\_simplex0\ X0\ np\_1))))))$$