

t12\_seq\_4  
(TMM8wsgNhDXXhQRDgZLNdcGJiTdzjECAXZV)

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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  $k1\_numbers : \iota$  be given. Let  $v5\_xxreal\_2 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k5\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k3\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k2\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_2 : \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k9\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_xxreal\_2 : \iota \Rightarrow o$  be given. Let  $k10\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (\forall X1. (v1\_xxreal\_0 X1) \Rightarrow (\forall X2. (v1\_xxreal\_0 X2) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X2)) \Rightarrow (r1\_xxreal\_0 X0 X2)))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (4)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (\forall X1. (v1\_xxreal\_0 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X0)) \Rightarrow (X0 = X1)) \quad (5)$$

Assume the following.

$$\forall X0. (v1\_xxreal\_0 X0) \Rightarrow (k5\_seq\_4 (k1\_seq\_4 X0) = k4\_seq\_4 (k1\_seq\_4 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xxreal\_0 X0)\wedge(v1\_xxreal\_0 X1))\Rightarrow(r1\_xxreal\_0 X0 X0) \quad (7)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers))\Rightarrow(k5\_seq\_4 X0 = k3\_seq\_4 X0) \quad (8)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers))\Rightarrow(k4\_seq\_4 X0 = k2\_seq\_4 X0) \quad (9)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(k1\_seq\_4 X0 = k1\_tarski X0) \quad (10)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (11)$$

Assume the following.

$$\forall X0.(v3\_membered X0)\Rightarrow(v1\_xreal\_0 (k3\_seq\_4 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(v3\_membered X0)\Rightarrow(v1\_xreal\_0 (k2\_seq\_4 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(v3\_membered X0)\Rightarrow & ((v3\_xxreal\_2 X0)\Rightarrow((v1\_xboole\_0 \\ & X0)\vee(\forall X1.(v1\_xreal\_0 X1)\Rightarrow((X1 = k3\_seq\_4 X0)\Leftrightarrow((\forall X2. \\ & (v1\_xreal\_0 X2)\Rightarrow((X2 \in X0)\Rightarrow(r1\_xxreal\_0 X1 X2))))\wedge(\forall X2. \\ & (v1\_xreal\_0 X2)\Rightarrow(\neg(\neg r1\_xxreal\_0 X2 k6\_numbers)\wedge(\forall X3. \\ & (v1\_xreal\_0 X3)\Rightarrow(\neg(X3 \in X0)\wedge(\neg r1\_xxreal\_0 (k9\_binop\_2 X1 X2) X3)))))))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k1\_tarski X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(X2 = X0)) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(v3\_membered X0)\Rightarrow & ((v4\_xxreal\_2 X0)\Rightarrow((v1\_xboole\_0 \\ & X0)\vee(\forall X1.(v1\_xreal\_0 X1)\Rightarrow((X1 = k2\_seq\_4 X0)\Leftrightarrow((\forall X2. \\ & (v1\_xreal\_0 X2)\Rightarrow((X2 \in X0)\Rightarrow(r1\_xxreal\_0 X2 X1))))\wedge(\forall X2. \\ & (v1\_xreal\_0 X2)\Rightarrow(\neg(\neg r1\_xxreal\_0 X2 k6\_numbers)\wedge(\forall X3. \\ & (v1\_xreal\_0 X3)\Rightarrow(\neg(X3 \in X0)\wedge(\neg r1\_xxreal\_0 X3 (k10\_binop\_2 X1 X2)))))))))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ k1\_numbers)) \Rightarrow (v3\_membered\ X0) \quad (17)$$

Assume the following.

$$\forall X0.((v2\_membered\ X0) \wedge (v5\_xxreal\_2\ X0)) \Rightarrow ((v2\_membered\ X0) \wedge ((v3\_xxreal\_2\ X0) \wedge (v4\_xxreal\_2\ X0))) \quad (18)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0\ X0) \Rightarrow (v1\_xxreal\_0\ X0) \quad (19)$$

Assume the following.

$$\forall X0.(v3\_membered\ X0) \Rightarrow (v2\_membered\ X0) \quad (20)$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers) \Rightarrow (v1\_xreal\_0\ X0) \quad (21)$$

Assume the following.

$$\forall X0.(v2\_membered\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ X0) \Rightarrow (v1\_xxreal\_0\ X1)) \quad (22)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ k1\_numbers)) \Rightarrow ((v5\_xxreal\_2\ X0) \Rightarrow ((v1\_xboole\_0\ X0) \vee ((\neg(\exists X1.(v1\_xreal\_0\ X1) \wedge (\exists X2. \\ & (v1\_xreal\_0\ X2) \wedge ((X1 \in X0) \wedge ((X2 \in X0) \wedge (X2 \neq X1)))))) \wedge (r1\_xxreal\_0 \\ & (k4\_seq\_4\ X0)\ (k5\_seq\_4\ X0))) \wedge (\neg(\neg r1\_xxreal\_0\ (k4\_seq\_4\ X0)\ ( \\ & k5\_seq\_4\ X0)) \wedge (\forall X1.(v1\_xreal\_0\ X1) \Rightarrow (\forall X2.(v1\_xreal\_0\ X2) \Rightarrow (\neg(X1 \in X0) \wedge ((X2 \in X0) \wedge (X2 \neq X1)))))))))) \end{aligned}$$