

# t4\_supinf\_1 (TMXL- Cfm9u4DDrQfrKkuTNsrFeDQU9GzfJME)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_setfam\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_numbers : \iota$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Let  $k5\_setfam\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_xxreal\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xxreal\_2 : \iota \Rightarrow \iota$  be given. Let  $k5\_supinf\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_tarski : \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(v2\_membered X1) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (r1\_xxreal\_0 (k1\_xxreal\_2 X0) (k1\_xxreal\_2 X1)))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \Rightarrow (k5\_setfam\_1 X0 X1 = k3\_tarski X1) \quad (2)$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_setfam\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k1\_zfmisc\_1 k7\_numbers)))))) \Rightarrow ((\neg v1\_xboole\_0 (k5\_supinf\_1 X0)) \wedge (v2\_membered (k5\_supinf\_1 X0))) \quad (3)$$

Assume the following.

$$\forall X0.(v2\_membered X0) \Rightarrow (v1\_xxreal\_0 (k1\_xxreal\_2 X0)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(X1 = k3\_tarski X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X2 \in X3) \wedge (X3 \in X0))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski X0 X1) \Leftrightarrow (\forall X2.(X2 \in X0) \Rightarrow (X2 \in X1)) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_setfam\_1 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 (k1\_zfmisc\_1 k7\_numbers)))))) \Rightarrow (\forall X1.(v2\_membered \\ & X1) \Rightarrow ((X1 = k5\_supinf\_1 X0) \Leftrightarrow (\forall X2.(v1\_xxreal\_0 X2) \Rightarrow ((X2 \in \\ & X1) \Leftrightarrow (\exists X3.((\neg v1\_xboole\_0 X3) \wedge (v2\_membered X3)) \wedge ((X3 \in \\ & X0) \wedge (X2 = k1\_xxreal\_2 X3))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (( \\ & m1\_xxreal\_2 X1 X0) \Leftrightarrow (\forall X2.(v1\_xxreal\_0 X2) \Rightarrow ((X2 \in X0) \Rightarrow (r1\_xxreal\_0 \\ & X2 X1)))))) \end{aligned} \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_setfam\_1 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 (k1\_zfmisc\_1 k7\_numbers)))))) \Rightarrow (\forall X1.(( \\ & \neg v1\_xboole\_0 X1) \wedge (v2\_membered X1)) \Rightarrow ((X1 = k5\_setfam\_1 k7\_numbers \\ & X0) \Rightarrow (m1\_xxreal\_2 (k1\_xxreal\_2 X1) (k5\_supinf\_1 X0)))) \end{aligned}$$