

t30\_graphsp  
(TMYzNV88Sr5mWH6VM45oVCFMAcUv7ms2HZy)

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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  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k15\_graphsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_graphsp : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_real\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 X1) \wedge ((\neg v3\_xxreal\_0 X1) \wedge (\neg v2\_xxreal\_0 X0)))) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\ & (m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (\forall X2.(m2\_finseq\_2 \\ & X2 k1\_numbers (k3\_finseq\_2 k1\_numbers)) \Rightarrow ((X1 = k15\_graphsp (k7\_graphsp \\ & X2 X0) X2 X0) \Rightarrow ((k7\_graphsp X2 X0 = k1\_xboole\_0) \vee ((X1 \in k4\_finseq\_1 \\ & X2) \wedge ((r1\_xxreal\_0 np\_1 X1) \wedge ((r1\_xxreal\_0 X1 X0) \wedge ((k1\_seq\_1 \\ & X2 X1 \neq k1\_real\_1 np\_1) \wedge (k1\_seq\_1 X2 (k2\_nat\_1 X0 X1) \neq k1\_real\_1 \\ & np\_1)))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \quad (4)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (5)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (6)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. ((m1\_subset\_1 \ X0 \ (k3\_finseq\_2 \ k1\_numbers)) \wedge (m1\_subset\_1 \ X1 \ k5\_numbers)) \Rightarrow (v1\_finset\_1 \ (k7\_graphsp \ X0 \ X1)) \quad (8)$$

Assume the following.

$$v1\_xboole\_0 \ k1\_xboole\_0 \quad (9)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. ((m1\_subset\_1 \ X0 \ (k3\_finseq\_2 \ k1\_numbers)) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (m1\_subset\_1 \ (k7\_graphsp \ X0 \ X1) \ (k1\_zfmisc\_1 \ k5\_numbers)) \quad (11)$$

Assume the following.

$$m2\_subset\_1 \ k6\_numbers \ k1\_numbers \ k5\_numbers \quad (12)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (13)$$

Assume the following.

$$\forall X0. m1\_finseq\_2 \ (k3\_finseq\_2 \ X0) \ X0 \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((v1\_finset\_1 \ X0) \wedge (m1\_subset\_1 \ X0 \ (k1\_zfmisc\_1 \ k5\_numbers))) \wedge ((m1\_subset\_1 \ X1 \ (k3\_finseq\_2 \ k1\_numbers)) \wedge (m1\_subset\_1 \ X2 \ k5\_numbers))) \Rightarrow (m2\_subset\_1 \ (k15\_graphsp \ X0 \ X1 \ X2) \ k1\_numbers \ k5\_numbers) \quad (15)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_finset\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 k5\_numbers))) \Rightarrow \\
& \quad (\forall X1.(m2\_finseq\_2 X1 k1\_numbers (k3\_finseq\_2 k1\_numbers)) \Rightarrow \\
& \quad \quad (\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow (\forall X3. \\
& (m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow ((X3 = k15\_graphsp X0 X1 \\
& \quad X2) \Leftrightarrow ((\neg(X0 \neq k1\_xboole\_0) \wedge (\forall X4.(m2\_subset\_1 X4 k1\_numbers \\
& \quad k5\_numbers) \Rightarrow (\neg(X4 = X3) \wedge ((X4 \in X0) \wedge ((\forall X5.(m2\_subset\_1 \\
& \quad X5 k1\_numbers k5\_numbers) \Rightarrow ((X5 \in X0) \Rightarrow (r1\_xxreal\_0 (k7\_partfun1 \\
& k1\_numbers X1 (k2\_nat\_1 (k4\_nat\_1 np\_2 X2) X4)) (k7\_partfun1 k1\_numbers \\
& \quad X1 (k2\_nat\_1 (k4\_nat\_1 np\_2 X2) X5)))))) \wedge (\forall X5.(m2\_subset\_1 \\
& \quad X5 k1\_numbers k5\_numbers) \Rightarrow ((X5 \in X0) \wedge (k7\_partfun1 k1\_numbers \\
& \quad X1 (k2\_nat\_1 (k4\_nat\_1 np\_2 X2) X4) = k7\_partfun1 k1\_numbers X1 \\
& \quad (k2\_nat\_1 (k4\_nat\_1 np\_2 X2) X5))) \Rightarrow (r1\_xxreal\_0 X4 X5)))))) \wedge \\
& \quad ((X0 = k1\_xboole\_0) \Rightarrow (X3 = k6\_numbers))))))
\end{aligned} \tag{16}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \tag{17}$$

Assume the following.

$$\forall X0.((v3\_ordinal1 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (v7\_ordinal1 X0) \tag{18}$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X0))) \tag{19}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v3\_ordinal1 X0) \tag{20}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xxreal\_0 X0) \tag{21}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xxreal\_0 X0) \tag{22}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\neg v3\_xxreal\_0 X0) \tag{23}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
& (m2\_finseq\_2 X1 k1\_numbers (k3\_finseq\_2 k1\_numbers)) \Rightarrow (r1\_xxreal\_0 \\
& \quad (k15\_graphsp (k7\_graphsp X1 X0) X1 X0) X0))
\end{aligned}$$