

t48\_jordan3 (TMWi-  
wa.MVd56wEUCg2dNZmN3BC7zmJzNSeau)

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Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_topreal1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_topreal1 : \iota \Rightarrow o$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k8\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_jordan3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_jordan3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_card\_1 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(m2\_finseq\_1 X0 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\
& (\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\
& (((k1\_funct\_1 X0 (k3\_finseq\_1 X0) = k1\_funct\_1 X1 np\_1) \wedge ((X2 \in \\
& k3\_topreal1 np\_2 X1) \wedge ((v4\_topreal1 X0) \wedge ((v4\_topreal1 X1) \wedge ( \\
& k9\_subset\_1 (u1\_struct\_0 (k15\_euclid np\_2)) (k3\_topreal1 np\_2 \\
& X0) (k3\_topreal1 np\_2 X1) = k1\_tarski (k1\_funct\_1 X1 np\_1)))))) \Rightarrow \\
& ((X2 = k1\_funct\_1 X1 np\_1) \vee (r1\_jordan3 (k8\_finseq\_1 (u1\_struct\_0 \\
& (k15\_euclid np\_2)) (k3\_finseq\_6 (u1\_struct\_0 (k15\_euclid np\_2)) \\
& X0 np\_1) (k7\_nat\_d (k3\_finseq\_1 X0) np\_1)) (k3\_jordan3 X1 X2)) \\
& (k7\_partfun1 (u1\_struct\_0 (k15\_euclid np\_2)) X0 np\_1) X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\
& ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Leftrightarrow(m1\_finseq\_1 X1 X0) \quad (3)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (4)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow (k3\_finseq\_1 X0 = k1\_card\_1 X0) \quad (5)$$

Assume the following.

$$v6\_membered k4\_ordinal1 \quad (6)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0)\Rightarrow((v1\_finset\_1 (k1\_card\_1 X0))\wedge(v1\_card\_1 (k1\_card\_1 X0))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow((v1\_funct\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_finseq\_1 X1 X0)\wedge(m1\_finseq\_1 X2 X0))\Rightarrow(m2\_finseq\_1 (k8\_finseq\_1 X0 X1 X2) X0) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1 X1)\wedge((v5\_relat\_1 X1 X0)\wedge(v1\_funct\_1 X1)))\Rightarrow(m1\_subset\_1 (k7\_partfun1 X0 X1 X2) X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0)\wedge(v7\_ordinal1 X1))\Rightarrow(m1\_subset\_1 (k7\_nat\_d X0 X1) k5\_numbers) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_finseq\_1 X0 (u1\_struct\_0 (k15\_euclid np\_2)))\wedge(m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid np\_2))))\Rightarrow(m2\_finseq\_1 (k3\_jordan3 X0 X1) (u1\_struct\_0 (k15\_euclid np\_2))) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & ((m1\_finseq\_1 X1 X0)\wedge((v7\_ordinal1 X2)\wedge(v7\_ordinal1 X3))))\Rightarrow \\ & (m2\_finseq\_1 (k3\_finseq\_6 X0 X1 X2 X3) X0) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.v1\_card\_1 (k1\_card\_1 X0) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_1 X0 (u1\_struct\_0 (k15\_euclid np\_2)))\Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid np\_2)))\Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 (k15\_euclid np\_2)))\Rightarrow \\ & ((r1\_jordan3 X0 X1 X2)\Leftrightarrow((v4\_topreal1 X0)\wedge((k1\_funct\_1 X0 np\_1 = \\ & X1)\wedge(k1\_funct\_1 X0 (k3\_finseq\_1 X0) = X2)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.((v3\_ordinal1 X0)\wedge(v1\_finset\_1 X0))\Rightarrow(v7\_ordinal1 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_xboole\_0 X0)\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X1 X0)))\Rightarrow(v1\_xboole\_0 X2)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_finseq\_1 X0 (u1\_struct\_0 (k15\_euclid np\_2)))\Rightarrow \\ & ((v4\_topreal1 X0)\Rightarrow(\neg v1\_xboole\_0 X0)) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow(v5\_relat\_1 X1 X0) \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow \\ & ((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finset\_1 X0))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.(v1\_card\_1 X0)\Rightarrow(v3\_ordinal1 X0) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v6\_membered X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow \\ & (v7\_ordinal1 X1)) \end{aligned} \quad (23)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m2\_finseq\_1 X0 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\ & (\forall X1.(m2\_finseq\_1 X1 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\ & (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 (k15\_euclid np\_2))) \Rightarrow \\ & (((k1\_funct\_1 X0 (k3\_finseq\_1 X0) = k1\_funct\_1 X1 np\_1) \wedge ((X2 \in \\ & k3\_topreal1 np\_2 X1) \wedge (v4\_topreal1 X0) \wedge (v4\_topreal1 X1) \wedge ( \\ & k9\_subset\_1 (u1\_struct\_0 (k15\_euclid np\_2)) (k3\_topreal1 np\_2 \\ & X0) (k3\_topreal1 np\_2 X1) = k1\_tarski (k1\_funct\_1 X1 np\_1)))))) \Rightarrow \\ & ((X2 = k1\_funct\_1 X1 np\_1) \vee (v4\_topreal1 (k8\_finseq\_1 (u1\_struct\_0 \\ & (k15\_euclid np\_2)) (k3\_finseq\_6 (u1\_struct\_0 (k15\_euclid np\_2)) \\ & X0 np\_1 (k7\_nat\_d (k3\_finseq\_1 X0) np\_1)) (k3\_jordan3 X1 X2)))))) \end{aligned}$$