

t30\_convex4 (TMY-  
DYR1HnL5QDqpAAYntQbhQscJx3CfSK6R)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_convex4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_convex4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_convex4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_complex1 : \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_numbers : \iota$  be given. Let  $v1\_membered : \iota \Rightarrow o$  be given. Let  $m1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 np\_1 X0 = X0) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0) \wedge (l2\_algstr\_0 X0)) \wedge ((m1\_convex4 X1 X0) \wedge (m1\_convex4 X2 X0))) \Rightarrow (r1\_convex4 X0 X1 X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 X1 X2 X3 = k1\_funct\_1 X2 X3) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_valued\_0 X0))) \Rightarrow (v1\_xcmplx\_0 (k1\_funct\_1 X0 X1)) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 k2\_numbers \quad (6)$$

Assume the following.

$$v1\_membered k2\_numbers \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 X1) \wedge (m1\_funct\_2 \\ & X2 X0 X1)) \Rightarrow (\forall X3. (m2\_funct\_2 X3 X0 X1 X2) \Rightarrow ((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\forall X1. \\ & (m1\_convex4 X1 X0) \Rightarrow (m2\_funct\_2 X1 (u1\_struct\_0 X0) k2\_numbers \\ & (k9\_funct\_2 (u1\_struct\_0 X0) k2\_numbers))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. (l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0. (l1\_clvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. (\neg v1\_xboole\_0 X1) \Rightarrow (m1\_funct\_2 (k9\_funct\_2 X0 X1) X0 X1) \quad (13)$$

Assume the following.

$$m1\_subset\_1 k6\_complex1 k2\_numbers \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_clvect\_1 X0)) \Rightarrow (\forall X1. \\ & (v1\_xcmplx\_0 X1) \Rightarrow (\forall X2. (m1\_convex4 X2 X0) \Rightarrow (\forall X3. \\ & (m1\_convex4 X3 X0) \Rightarrow ((X3 = k7\_convex4 X0 X1 X2) \Leftrightarrow (\forall X4. (m1\_subset\_1 \\ & X4 (u1\_struct\_0 X0)) \Rightarrow (k3\_funct\_2 (u1\_struct\_0 X0) k2\_numbers \\ & X3 X4 = k3\_xcmplx\_0 X1 (k3\_funct\_2 (u1\_struct\_0 X0) k2\_numbers X2 \\ & X4)))))) \end{aligned} \quad (15)$$

Assume the following.

$$k6\_complex1 = np\_1 \quad (16)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k2\_numbers) \Rightarrow (v1\_xcmplx\_0 X0) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.(v1\_membered X1) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_valued\_0 X2)) \quad (19)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_clvect\_1 X0)) \Rightarrow (\forall X1. (m1\_convex4 X1 X0) \Rightarrow (r1\_convex4 X0 (k7\_convex4 X0 k6\_complex1 X1 X1)))$$