

t21\_convex1  
(TMFdz21f63zUtzWJ57vHwEFaC3PF3U1cy6J)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_convex1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_rlvect\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k18\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k5\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$k18\_rvsum\_1 (k6\_finseq\_1 k1\_numbers) = k6\_numbers \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & ((v2\_funct\_1 X0) \Leftrightarrow (k5\_card\_1 (k10\_xtuple\_0 X0) = k3\_finseq\_1 X0)) \end{aligned} \quad (3)$$

Assume the following.

$$k1\_card\_1 k1\_xboole\_0 = k1\_xboole\_0 \quad (4)$$

Assume the following.

$$m1\_subset\_1 \ k1\_xboole\_0 \ k4\_ordinal1 \tag{5}$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_1 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 \ X1 \ X0) \Leftrightarrow (m1\_finseq\_1 \ X1 \ X0) \tag{7}$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \tag{8}$$

Assume the following.

$$\forall X0.(v1\_finset\_1 \ X0) \Rightarrow (k5\_card\_1 \ X0 = k1\_card\_1 \ X0) \tag{9}$$

Assume the following.

$$\forall X0.((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge (v1\_finseq\_1 \ X0))) \Rightarrow (k3\_finseq\_1 \ X0 = k1\_card\_1 \ X0) \tag{10}$$

Assume the following.

$$\forall X0.v1\_xboole\_0 \ (k6\_finseq\_1 \ X0) \tag{11}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 \ X0) \Rightarrow ((\neg v1\_xboole\_0 \ (k1\_card\_1 \ X0)) \wedge (v1\_card\_1 \ (k1\_card\_1 \ X0))) \tag{12}$$

Assume the following.

$$v1\_xboole\_0 \ k1\_xboole\_0 \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 \ X1 \ X0) \Rightarrow ((v1\_funct\_1 \ X1) \wedge (v1\_finseq\_1 \ X1) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ X0)))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 \ X1 \ X0) \Rightarrow ((v1\_relat\_1 \ X1) \wedge (v1\_funct\_1 \ X1) \wedge (v1\_finseq\_1 \ X1)) \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_rlvect\_2 X1 X0) \Rightarrow ((v2\_convex1 X1 \\
& X0) \Leftrightarrow (\exists X2.(m2\_finseq\_1 X2 (u1\_struct\_0 X0)) \wedge ((v2\_funct\_1 \\
& X2) \wedge ((k10\_xtuple\_0 X2 = k3\_rlvect\_2 X0 X1) \wedge (\exists X3.(m2\_finseq\_1 \\
& X3 k1\_numbers) \wedge ((k3\_finseq\_1 X3 = k3\_finseq\_1 X2) \wedge ((k18\_rvsum\_1 \\
& X3 = np\_1) \wedge (\forall X4.(v7\_ordinal1 X4) \Rightarrow ((X4 \in k4\_finseq\_1 X3) \Rightarrow \\
& ((k1\_funct\_1 X3 X4 = k1\_funct\_1 X1 (k1\_funct\_1 X2 X4)) \wedge (r1\_xxreal\_0 \\
& k6\_numbers (k1\_funct\_1 X3 X4)))))))))))))
\end{aligned} \tag{16}$$

Assume the following.

$$k1\_xboole\_0 = the (\lambda X0 : \iota.v1\_xboole\_0 X0) \tag{17}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v1\_finset\_1 X0) \tag{18}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_rlvect\_2 X1 X0) \Rightarrow (\neg (v2\_convex1 \\
& X1 X0) \wedge (k3\_rlvect\_2 X0 X1 = k1\_xboole\_0)))
\end{aligned}$$