

t26\_scmbSORT  
(TMWmxFY22afgi3TEstaid1RxqzvZryNdKXj)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmf\_sa\_2 : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_scmf\_sa6a : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_compos\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k7\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xreal\_0 X2) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Leftrightarrow (r1\_xxreal\_0 (k2\_xcmplx\_0 \\ & X0 X2) (k2\_xcmplx\_0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (k7\_nat\_d \\ & (k2\_xcmplx\_0 X0 X1) X1 = X0)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 \\
& X0 \ k5\_numbers) \wedge ((v5\_relat\_1 X0 \ (u1\_compos\_1 \ k1\_scmfsa\_2)) \wedge \\
& (v1\_funct\_1 X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0)))))) \Rightarrow ( \\
& \forall X1.((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\
& X1 \ k5\_numbers) \wedge ((v5\_relat\_1 X1 \ (u1\_compos\_1 \ k1\_scmfsa\_2)) \wedge \\
& (v1\_funct\_1 X1) \wedge ((v1\_finset\_1 X1) \wedge (v1\_afinsq\_1 X1)))))) \Rightarrow ( \\
& \forall X2.(m2\_subset\_1 X2 \ k1\_numbers \ k5\_numbers) \Rightarrow ((r1\_xxreal\_0 \\
& (k5\_card\_1 X0) X2) \Rightarrow ((r1\_xxreal\_0 (k2\_nat\_1 (k5\_card\_1 X0) (k5\_card\_1 \\
& X1)) X2) \vee (\forall X3.(m1\_subset\_1 X3 \ (u1\_compos\_1 \ k1\_scmfsa\_2)) \Rightarrow \\
& ((X3 = k1\_funct\_1 X1 \ (k7\_nat\_d X2 \ (k5\_card\_1 X0))) \Rightarrow (k1\_funct\_1 \\
& (k3\_scmfsa6a X0 X1) X2 = k5\_compos\_0 (u1\_compos\_1 \ k1\_scmfsa\_2) \\
& X3 \ (k5\_card\_1 X0)))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (r1\_xxreal\_0 X0 \ (k2\_xcmplx\_0 X0 X1))) \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 \ (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{5}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 \ k5\_numbers) \wedge (v7\_ordinal1 X1)) \Rightarrow (k2\_nat\_1 X0 X1 = k2\_xcmplx\_0 X0 X1) \tag{7}$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \tag{8}$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \tag{9}$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (m1\_subset\_1 \ (k5\_card\_1 X0) \ k4\_ordinal1) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 \ k5\_numbers) \wedge (v7\_ordinal1 X1)) \Rightarrow (m2\_subset\_1 \ (k2\_nat\_1 X0 X1) \ k1\_numbers \ k5\_numbers) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 X1))\Rightarrow(k2\_nat\_1 X0 X1 = k2\_nat\_1 X1 X0) \quad (12)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (13)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_xreal\_0 X0) \quad (14)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\Rightarrow(v1\_xboole\_0 X1)) \quad (15)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0)\wedge((v4\_relat\_1 X0 k5\_numbers)\wedge((v5\_relat\_1 \\ & X0 (u1\_compos\_1 k1\_scmfsa\_2))\wedge((v1\_funct\_1 X0)\wedge((\neg v1\_xboole\_0 \\ & X0)\wedge((v1\_finset\_1 X0)\wedge(v1\_afinsq\_1 X0))))))\Rightarrow(\forall X1.( \\ & (v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 k5\_numbers)\wedge((v5\_relat\_1 X1 \\ & (u1\_compos\_1 k1\_scmfsa\_2))\wedge((v1\_funct\_1 X1)\wedge((\neg v1\_xboole\_0 \\ & X1)\wedge((v1\_finset\_1 X1)\wedge(v1\_afinsq\_1 X1))))))\Rightarrow(\forall X2.( \\ & m2\_subset\_1 X2 k1\_numbers k5\_numbers)\Rightarrow(\forall X3.(m1\_subset\_1 \\ & X3 (u1\_compos\_1 k1\_scmfsa\_2))\Rightarrow((X3 = k1\_funct\_1 X1 X2)\Rightarrow((r1\_xxreal\_0 \\ & (k5\_card\_1 X1) X2)\vee(k1\_funct\_1 (k3\_scmfsa6a X0 X1) (k2\_nat\_1 ( \\ & k5\_card\_1 X0) X2) = k5\_compos\_0 (u1\_compos\_1 k1\_scmfsa\_2) X3 (k5\_card\_1 \\ & X0)))))) \end{aligned}$$