

## t45\_scmpds\_6

(TMVHnNJ416HPePgPqUhMqv8p2BiaQqtBZdZ)

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Let  $v1\_ami\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmpds\_2 : \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. 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  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v1\_afinsq\_1 : \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_scmpds\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_scmpds\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k4\_ordinal1 : \iota$  be given. Let  $k7\_scmpds\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmpds\_2)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge \\ & ((v5\_relat\_1 X1 (u1\_compos\_1 k1\_scmpds\_2)) \wedge ((v1\_funct\_1 X1) \wedge \\ & ((v1\_finset\_1 X1) \wedge (v1\_afinsq\_1 X1))))))) \Rightarrow (k5\_card\_1 (k2\_scmpds\_4 \\ & X0 X1) = k2\_nat\_1 (k5\_card\_1 X1) np\_1)) \end{aligned} \quad (1)$$

Assume the following.

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

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_ami\_2 X0) \wedge (m1\_subset\_1 \\ & X0 (u1\_struct\_0 k1\_scmpds\_2))) \wedge ((v1\_int\_1 X1) \wedge (v1\_int\_1 X2))) \Rightarrow \\ & (m1\_subset\_1 (k7\_scmpds\_2 X0 X1 X2) (u1\_compos\_1 k1\_scmpds\_2)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (m1\_subset\_1 (k5\_card\_1 X0) k4\_ordinal1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1\_subset\_1 X0 (u1\_compos\_1 k1\_scmpds\_2))\wedge \\ & ((\neg v1\_xboole\_0 X1)\wedge((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 k5\_numbers)\wedge \\ & ((v5\_relat\_1 X1 (u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 X1)\wedge \\ & ((v1\_finset\_1 X1)\wedge(v1\_afinsq\_1 X1))))))))\Rightarrow((\neg v1\_xboole\_0 ( \\ & k2\_scmpds\_4 X0 X1))\wedge((v1\_relat\_1 (k2\_scmpds\_4 X0 X1))\wedge((v4\_relat\_1 \\ & (k2\_scmpds\_4 X0 X1) k5\_numbers)\wedge((v5\_relat\_1 (k2\_scmpds\_4 X0 \\ & X1) (u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 (k2\_scmpds\_4 X0 \\ & X1))\wedge((v1\_finset\_1 (k2\_scmpds\_4 X0 X1))\wedge(v1\_afinsq\_1 (k2\_scmpds\_4 \\ & X0 X1)))))))))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_ami\_2 X0)\wedge(m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2)))\Rightarrow \\ & (\forall X1.(v1\_int\_1 X1)\Rightarrow(\forall X2.((\neg v1\_xboole\_0 X2)\wedge(( \\ & v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 X2 ( \\ & u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 X2)\wedge((v1\_finset\_1 X2)\wedge \\ & (v1\_afinsq\_1 X2))))))))\Rightarrow(k5\_scmpds\_6 X0 X1 X2 = k2\_scmpds\_4 (k7\_scmpds\_2 \\ & X0 X1 (k2\_nat\_1 (k5\_card\_1 X2) np\_1)) X2))) \end{aligned} \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 X1))\Rightarrow(k2\_nat\_1 X0 X1 = k2\_nat\_1 X1 X0) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \tag{9}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_int\_1 X0) \tag{10}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((v1\_ami\_2 X0)\wedge(m1\_subset\_1 X0 (u1\_struct\_0 k1\_scmpds\_2)))\Rightarrow \\ & (\forall X1.(v1\_int\_1 X1)\Rightarrow(\forall X2.((\neg v1\_xboole\_0 X2)\wedge(( \\ & v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 X2 ( \\ & u1\_compos\_1 k1\_scmpds\_2))\wedge((v1\_funct\_1 X2)\wedge((v1\_finset\_1 X2)\wedge \\ & (v1\_afinsq\_1 X2))))))))\Rightarrow(k5\_card\_1 (k5\_scmpds\_6 X0 X1 X2) = k2\_nat\_1 \\ & (k5\_card\_1 X2) np\_1))) \end{aligned}$$