

## t34\_scmfsa6a

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_scmfsa\_2 : \iota$  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  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $k5\_scmfsa6a : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $k11\_compos\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_scmfsa6a : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_3 : \iota$  be given. Assume the following.

$$\forall X0.(l1\_compos\_1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_compos\_1 X0)) \Rightarrow (k5\_card\_1 (k11\_compos\_1 X0 X1) = np\_2)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v4\_relat\_1 X0 k5\_numbers) \wedge ((v5\_relat\_1 \\ & X0 (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 \\ & X0) \wedge ((v1\_finset\_1 X0) \wedge (v1\_afinsq\_1 X0))))))) \Rightarrow (\forall X1.( \\ & (v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 \\ & (u1\_compos\_1 k1\_scmfsa\_2)) \wedge ((\neg v1\_xboole\_0 X1) \wedge ((v1\_funct\_1 \\ & X1) \wedge ((v1\_finset\_1 X1) \wedge (v1\_afinsq\_1 X1))))))) \Rightarrow (k5\_card\_1 (k3\_scmfsa6a \\ & X0 X1) = k2\_nat\_1 (k5\_card\_1 X0) (k5\_card\_1 X1))) \quad (2) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1\_compos\_1 X0) \wedge (m1\_subset\_1 X1 (u1\_compos\_1 \\ & X0))) \Rightarrow (((\neg v1\_xboole\_0 (k11\_compos\_1 X0 X1)) \wedge ((v1\_relat\_1 (k11\_compos\_1 \\ & X0 X1)) \wedge ((v4\_relat\_1 (k11\_compos\_1 X0 X1) k5\_numbers) \wedge ((v5\_relat\_1 \\ & (k11\_compos\_1 X0 X1) (u1\_compos\_1 X0)) \wedge ((v1\_funct\_1 (k11\_compos\_1 \\ & X0 X1)) \wedge ((v1\_finset\_1 (k11\_compos\_1 X0 X1)) \wedge (v1\_afinsq\_1 (k11\_compos\_1 \\ & X0 X1)))))))))) \quad (3) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.(l1\_extpro\_1 X1 X0)\Rightarrow((l1\_memstr\_0 X1 X0)\wedge (l1\_compos\_1 X1)) \quad (4)$$

Assume the following.

$$(v1\_extpro\_1 k1\_scmfsa\_2 np\_3)\wedge(l1\_extpro\_1 k1\_scmfsa\_2 np\_3) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((l1\_compos\_1 X0)\wedge(m1\_subset\_1 X1 (u1\_compos\_1 \\ X0)))\Rightarrow((v1\_relat\_1 (k11\_compos\_1 X0 X1))\wedge((v4\_relat\_1 (k11\_compos\_1 \\ X0 X1) k5\_numbers)\wedge((v5\_relat\_1 (k11\_compos\_1 X0 X1) (u1\_compos\_1 \\ X0))\wedge((v1\_funct\_1 (k11\_compos\_1 X0 X1))\wedge(v1\_finset\_1 (k11\_compos\_1 \\ X0 X1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0)\wedge((v4\_relat\_1 X0 k5\_numbers)\wedge((v5\_relat\_1 \\ X0 (u1\_compos\_1 k1\_scmfsa\_2))\wedge((\neg v1\_xboole\_0 X0)\wedge((v1\_funct\_1 \\ X0)\wedge((v1\_finset\_1 X0)\wedge(v1\_afinsq\_1 X0)))))))\Rightarrow(\forall X1.( \\ m1\_subset\_1 X1 (u1\_compos\_1 k1\_scmfsa\_2))\Rightarrow(k5\_scmfsa6a X0 X1 = \\ k3\_scmfsa6a X0 (k11\_compos\_1 k1\_scmfsa\_2 X1))) \end{aligned} \quad (7)$$

**Theorem 1**

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