

t46\_group\_1  
(TMNBMbw7qhTWBnk5qkpLZeoKNgPHa8oGS9w)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $g3\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k33\_binop\_2 : \iota$  be given. Let  $v2\_group\_1 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v15\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k9\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u2\_algstr\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$(v3\_group\_1 (g3\_algstr\_0 k1\_numbers k33\_binop\_2)) \wedge (v2\_group\_1 (g3\_algstr\_0 k1\_numbers k33\_binop\_2)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X1) \wedge \\ & ((v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \wedge ((m1\_subset\_1 X2 X0) \wedge \\ & (m1\_subset\_1 X3 X0))) \Rightarrow (k5\_binop\_1 X0 X1 X2 X3 = k1\_binop\_1 X1 X2 X3) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (k2\_zfmisc\_1 \\ & X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0) X0)))))) \Rightarrow (\forall X2. \forall X3. (g3\_algstr\_0 X0 X1 = g3\_algstr\_0 \\ & X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \end{aligned} \quad (3)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((v1\_funct\_1 X1)\wedge \\ (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0))))))\Rightarrow((\neg v2\_struct\_0 (g3\_algstr\_0 \\ X0 X1))\wedge(v15\_algstr\_0 (g3\_algstr\_0 X0 X1))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} (v1\_funct\_1 k33\_binop\_2)\wedge((v1\_funct\_2 k33\_binop\_2 (k2\_zfmisc\_1 \\ k1\_numbers k1\_numbers) k1\_numbers)\wedge(m1\_subset\_1 k33\_binop\_2 \\ (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers) \\ k1\_numbers)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 (k2\_zfmisc\_1 \\ X0 X0) X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 \\ X0 X0) X0))))))\Rightarrow((v15\_algstr\_0 (g3\_algstr\_0 X0 X1))\wedge(l3\_algstr\_0 \\ (g3\_algstr\_0 X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_funct\_1 X0)\wedge((v1\_funct\_2 X0 (k2\_zfmisc\_1 k1\_numbers \\ k1\_numbers) k1\_numbers)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ (k2\_zfmisc\_1 k1\_numbers k1\_numbers) k1\_numbers))))))\Rightarrow((X0 = k33\_binop\_2)\Leftrightarrow \\ (\forall X1.(v1\_xreal\_0 X1)\Rightarrow(\forall X2.(v1\_xreal\_0 X2)\Rightarrow(k1\_binop\_1 \\ X0 X1 X2 = k9\_binop\_2 X1 X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(k6\_algstr\_0 \\ X0 X1 X2 = k5\_binop\_1 (u1\_struct\_0 X0) (u2\_algstr\_0 X0) X1 X2))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3\_algstr\_0 X0)\Rightarrow((v5\_group\_1 X0)\Leftrightarrow(\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0))\Rightarrow(k6\_algstr\_0 X0 X1 X2 = k6\_algstr\_0 X0 X2 X1)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_xreal\_0 X0)\wedge(v1\_xreal\_0 X1))\Rightarrow(k9\_binop\_2 \\ X0 X1 = k9\_binop\_2 X1 X0) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (12)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v15\_algstr\_0 X0) \Rightarrow (X0 = g3\_algstr\_0 (u1\_struct\_0 X0) (u2\_algstr\_0 X0))) \quad (13)$$

**Theorem 1**

$$\begin{aligned} & (\neg v2\_struct\_0 (g3\_algstr\_0 k1\_numbers k33\_binop\_2)) \wedge ((v2\_group\_1 \\ & (g3\_algstr\_0 k1\_numbers k33\_binop\_2)) \wedge ((v3\_group\_1 (g3\_algstr\_0 \\ & k1\_numbers k33\_binop\_2)) \wedge ((v5\_group\_1 (g3\_algstr\_0 k1\_numbers \\ & k33\_binop\_2)) \wedge (l3\_algstr\_0 (g3\_algstr\_0 k1\_numbers k33\_binop\_2)))))) \end{aligned}$$