

t10\_zmodul01 (TM-  
RNykK1ryyEFpuyWg87mYF9DHn6SjMbnSt)

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Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. 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  $v2\_zmodul01 : \iota \Rightarrow o$  be given. Let  $v3\_zmodul01 : \iota \Rightarrow o$  be given. Let  $v4\_zmodul01 : \iota \Rightarrow o$  be given. Let  $v5\_zmodul01 : \iota \Rightarrow o$  be given. Let  $l1\_zmodul01 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v6\_zmodul01 : \iota \Rightarrow o$  be given. Let  $k1\_zmodul01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k5\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_int\_1 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 \\ & X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge \\ & ((v2\_zmodul01 X1) \wedge ((v3\_zmodul01 X1) \wedge ((v4\_zmodul01 X1) \wedge ((v5\_zmodul01 \\ & X1) \wedge (l1\_zmodul01 X1)))))))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 ( \\ & u1\_struct\_0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow \\ & (k1\_zmodul01 X1 (k5\_algstr\_0 X1 X2 X3) X0 = k5\_algstr\_0 X1 (k1\_zmodul01 \\ & X1 X2 X0) (k1\_zmodul01 X1 X3 X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ & X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow ((k5\_algstr\_0 X0 X1 X2 = k4\_struct\_0 X0) \Rightarrow (X1 = X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ & X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (k5\_algstr\_0 X0 X1 X1 = k4\_struct\_0 X0)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(l1\_zmodul01 X0) \Rightarrow (l2\_algstr\_0 X0) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l2\_algstr\_0 X0)\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(m1\_subset\_1 X2 (u1\_struct\_0 X0))))\Rightarrow(m1\_subset\_1 (k5\_algstr\_0 X0 X1 X2) (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0 X0)\wedge(l1\_zmodul01 X0))\wedge((m1\_subset\_1 X1 (u1\_struct\_0 X0))\wedge(v1\_int\_1 X2)))\Rightarrow(m1\_subset\_1 (k1\_zmodul01 X0 X1 X2) (u1\_struct\_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_zmodul01 X0))\Rightarrow((v6\_zmodul01 X0)\Leftrightarrow(\forall X1.(v1\_int\_1 X1)\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\neg(k1\_zmodul01 X0 X2 X1 = k4\_struct\_0 X0)\wedge((X1\neq k6\_numbers)\wedge(X2\neq k4\_struct\_0 X0)))))) \quad (7)$$

**Theorem 1**

$$\forall X0.(v1\_int\_1 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge((v2\_zmodul01 X1)\wedge((v3\_zmodul01 X1)\wedge((v4\_zmodul01 X1)\wedge((v5\_zmodul01 X1)\wedge(l1\_zmodul01 X1))))))))))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X1))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X1))\Rightarrow(((v6\_zmodul01 X1)\wedge(k1\_zmodul01 X1 X2 X0 = k1\_zmodul01 X1 X3 X0))\Rightarrow((X0 = k6\_numbers)\vee(X2 = X3))))))$$