

l27_nat_lat (TMXrxreNzDM- fiy8WKZcNKz3YsXNT44J6nqk)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k10_nat_lat : \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k5_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\forall X2. \\ & (v7_ordinal1 X2) \Rightarrow (k5_nat_d X0 (k5_nat_d X1 X2) = k5_nat_d (k5_nat_d \\ & X0 X1) X2))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_subset_1 X0 (u1_struct_0 k10_nat_lat)) \wedge \\ & (m1_subset_1 X1 (u1_struct_0 k10_nat_lat))) \Rightarrow (k1_lattices k10_nat_lat \\ & X0 X1 = k5_nat_d X0 X1) \end{aligned} \tag{2}$$

Assume the following.

$$(\neg v2_struct_0 k10_nat_lat) \wedge (v3_lattices k10_nat_lat) \tag{3}$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (l2_lattices \\ & X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0)))) \Rightarrow (m1_subset_1 (k1_lattices X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \tag{5}$$

Assume the following.

$$(v3_lattices k10_nat_lat) \wedge (l3_lattices k10_nat_lat) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow(k5_nat_d\ X0\ X1 = k5_nat_d\ X1\ X0) \quad (7)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ (u1_struct_0\ k10_nat_lat))\Rightarrow((\neg v1_xboole_0\ X0)\wedge(v7_ordinal1\ X0)) \quad (8)$$

Theorem 1

$$\begin{aligned} & (\forall X0.(m1_subset_1\ X0\ (u1_struct_0\ k10_nat_lat))\Rightarrow(\forall X1. \\ & (m1_subset_1\ X1\ (u1_struct_0\ k10_nat_lat))\Rightarrow(k1_lattices\ k10_nat_lat \\ & \quad X0\ X1 = k1_lattices\ k10_nat_lat\ X1\ X0)))\wedge(\forall X0.(m1_subset_1 \\ & \quad X0\ (u1_struct_0\ k10_nat_lat))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0 \\ & \quad k10_nat_lat))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ k10_nat_lat))\Rightarrow \\ & (k1_lattices\ k10_nat_lat\ X0\ (k1_lattices\ k10_nat_lat\ X1\ X2) = k1_lattices \\ & \quad k10_nat_lat\ (k1_lattices\ k10_nat_lat\ X0\ X1)\ X2)))) \end{aligned}$$