

l28_nat_lat
(TMcqaxSGbtkgLcpuXkiYkQnmMoidW5fhKST)

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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 $k2_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k5_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (k5_nat_d (k6_nat_d X0 X1) X1 = X1)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 (u1_struct_0 k10_nat_lat)) \wedge (m1_subset_1 X1 (u1_struct_0 k10_nat_lat))) \Rightarrow (k2_lattices k10_nat_lat X0 X1 = k6_nat_d X0 X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 (u1_struct_0 k10_nat_lat)) \wedge (m1_subset_1 X1 (u1_struct_0 k10_nat_lat))) \Rightarrow (k1_lattices k10_nat_lat X0 X1 = k5_nat_d X0 X1) \quad (3)$$

Assume the following.

$$(\neg v2_struct_0 k10_nat_lat) \wedge (v3_lattices k10_nat_lat) \quad (4)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge (l1_lattices X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k2_lattices X0 X1 X2) (u1_struct_0 X0)) \quad (6)$$

Assume the following.

$$(v3_lattices\ k10_nat_lat) \wedge (l3_lattices\ k10_nat_lat) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. ((v7_ordinal1\ X0) \wedge (v7_ordinal1\ X1)) \Rightarrow (k6_nat_d\ X0\ X1 = k6_nat_d\ X1\ X0) \quad (8)$$

Assume the following.

$$\forall X0. (m1_subset_1\ X0\ (u1_struct_0\ k10_nat_lat)) \Rightarrow ((\neg v1_xboole_0\ X0) \wedge (v7_ordinal1\ X0)) \quad (9)$$

Theorem 1

$$\begin{aligned} & (\forall X0. (m1_subset_1\ X0\ (u1_struct_0\ k10_nat_lat)) \Rightarrow (\forall X1. \\ & (m1_subset_1\ X1\ (u1_struct_0\ k10_nat_lat)) \Rightarrow (k1_lattices\ k10_nat_lat \\ & (k2_lattices\ k10_nat_lat\ X0\ X1)\ X1 = X1))) \wedge (\forall X0. (m1_subset_1 \\ & X0\ (u1_struct_0\ k10_nat_lat)) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (u1_struct_0 \\ & k10_nat_lat)) \Rightarrow (k2_lattices\ k10_nat_lat\ X0\ X1 = k2_lattices\ k10_nat_lat \\ & X1\ X0))) \end{aligned}$$