

t23_real_lat (TMH- sQT74B6NgLjtHTY64Xc84LbuSEVNgVTP)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_real_lat : \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_real_lat : \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k5_real_lat : \iota \Rightarrow \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ (k6_real_lat X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 \\ (k6_real_lat X0))) \Rightarrow (k1_binop_1 (k4_real_lat X0) X1 X2 = k1_binop_1 \\ (k4_real_lat X0) X2 X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))) \wedge ((m1_subset_1 X2 X0) \wedge \\ (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat \\
& X0)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (g3_lattices \\
& (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)))) \Rightarrow \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 (g3_lattices (k9_funct_2 \\
& X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)))) \Rightarrow (k1_lattices \\
& (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat \\
& X0)) X1 (k1_lattices (g3_lattices (k9_funct_2 X0 k1_numbers) (\\
& k4_real_lat X0) (k5_real_lat X0)) X2 X3) = k1_lattices (g3_lattices \\
& (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)) \\
& (k1_lattices (g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat \\
& X0) (k5_real_lat X0)) X1 X2) X3))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v1_funct_1 X1) \wedge ((v1_funct_2 \\
& X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) X0)))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\
& (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3.\forall X4.\forall X5. \\
& (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\
& (X2 = X5))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow ((\neg v2_struct_0 (k6_real_lat X0)) \wedge \\
& ((v4_lattices (k6_real_lat X0)) \wedge ((v5_lattices (k6_real_lat \\
& X0)) \wedge ((v6_lattices (k6_real_lat X0)) \wedge ((v7_lattices (k6_real_lat \\
& X0)) \wedge ((v8_lattices (k6_real_lat X0)) \wedge (v9_lattices (k6_real_lat \\
& X0))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_lattices X0) \Rightarrow ((v1_funct_1 (u2_lattices X0)) \wedge \\
& ((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\
& u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_lattices \\
& X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\
& u1_struct_0 X0)) (u1_struct_0 X0))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \tag{7}$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow ((\neg v2_struct_0 (k6_real_lat X0)) \wedge \\
((v3_lattices (k6_real_lat X0)) \wedge (l3_lattices (k6_real_lat X0)))) \tag{8}$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k5_real_lat X0)) \wedge \\ & ((v1_funct_2 (k5_real_lat X0) (k2_zfmisc_1 (k9_funct_2 X0 k1_numbers) \\ & (k9_funct_2 X0 k1_numbers)) (k9_funct_2 X0 k1_numbers)) \wedge (m1_subset_1 \\ & (k5_real_lat X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 \\ & X0 k1_numbers) (k9_funct_2 X0 k1_numbers)) (k9_funct_2 X0 k1_numbers)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(\neg v1_xboole_0 X0) \Rightarrow & ((v1_funct_1 (k4_real_lat X0)) \wedge \\ & ((v1_funct_2 (k4_real_lat X0) (k2_zfmisc_1 (k9_funct_2 X0 k1_numbers) \\ & (k9_funct_2 X0 k1_numbers)) (k9_funct_2 X0 k1_numbers)) \wedge (m1_subset_1 \\ & (k4_real_lat X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 \\ & X0 k1_numbers) (k9_funct_2 X0 k1_numbers)) (k9_funct_2 X0 k1_numbers)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. & (((\neg v2_struct_0 X0) \wedge (l2_lattices \\ & X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0)))) \Rightarrow (m1_subset_1 (k1_lattices X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (k6_real_lat X0 = g3_lattices (k9_funct_2 X0 k1_numbers) (k4_real_lat X0) (k5_real_lat X0)) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0. & ((\neg v2_struct_0 X0) \wedge (l2_lattices X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (k1_lattices X0 X1 X2 = k5_binop_1 (u1_struct_0 \\ & X0) (u2_lattices X0) X1 X2))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0. (l3_lattices X0) \Rightarrow ((v3_lattices X0) \Rightarrow (X0 = g3_lattices (u1_struct_0 X0) (u2_lattices X0) (u1_lattices X0))) \quad (14)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & \quad (k6_real_lat X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ & \quad (k6_real_lat X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & \quad (k6_real_lat X0))) \Rightarrow ((k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) X1) \wedge ((k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X1 X2) X3) \wedge ((k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X1) X3) \wedge ((k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X3 X1) X2) \wedge ((k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X3 X2) X1) \wedge (k1_binop_1 (k4_real_lat X0) X1 (k1_binop_1 \\ & \quad (k4_real_lat X0) X2 X3) = k1_binop_1 (k4_real_lat X0) (k1_binop_1 \\ & \quad (k4_real_lat X0) X1 X3) X2)))))))))) \end{aligned}$$