

l142_toprealb
(TMco4LqunKyRYmjPJybT4958sMmMQi2eAjm)

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Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $c50_toprealb : \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_topalg_2 : \iota$ be given. Let $k5_toprealb : \iota \Rightarrow \iota$ be given. Let $c45_toprealb : \iota$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $np_2 : \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $c5_toprealb : \iota$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_topmetr : \iota$ be given. Let $k1_numbers : \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $np_3 : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k32_sin_cos : \iota$ be given. Let $k31_sin_cos : \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fcont_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_toprealb : \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Let $v1_fcont_1 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $v1_xbool_0 : \iota \Rightarrow o$ be given. Assume the

following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\
& X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\
& X1)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& X0))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 \\
& X1)))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 \\
& X0) (u1_struct_0 X1)) \wedge ((v5_pre_topc X4 X0 X1) \wedge (m1_subset_1 X4 \\
& (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\
& (\forall X5.((v1_funct_1 X5) \wedge ((v1_funct_2 X5 (u1_struct_0 (k1_pre_topc \\
& X0 X2)) (u1_struct_0 (k1_pre_topc X1 X3))) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 (k1_pre_topc X0 X2)) (u1_struct_0 (\\
& k1_pre_topc X1 X3)))))) \Rightarrow ((X5 = k2_partfun1 (u1_struct_0 X0) (\\
& u1_struct_0 X1) X4 X2) \Rightarrow (v5_pre_topc X5 (k1_pre_topc X0 X2) (k1_pre_topc \\
& X1 X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$u1_struct_0 k3_topmetr = k1_numbers \tag{2}$$

Assume the following.

$$\begin{aligned}
& ((v2_xxreal_0 np_3) \wedge (m2_subset_1 np_3 k1_numbers k5_numbers)) \wedge \\
& ((m1_subset_1 np_3 k5_numbers) \wedge (m1_subset_1 np_3 k1_numbers))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\
& ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge \\
& ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers))
\end{aligned} \tag{5}$$

Assume the following.

$$k2_xcmplx_0 np_1 (k7_xcmplx_0 np_1 np_2) = k7_xcmplx_0 np_3 np_2 \tag{6}$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k8_real_1 X0 X1 = k3_xcmplx_0 X0 X1) \tag{7}$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k7_real_1 X0 X1 = k2_xcmplx_0 X0 X1) \tag{8}$$

Assume the following.

$$k32_sin_cos = k31_sin_cos \quad (9)$$

Assume the following.

$$k2_topalg_2 = k3_topmetr \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k10_real_1 X0 X1 = k7_xcmplx_0 X0 X1) \quad (11)$$

Assume the following.

$$k2_reset_1 k1_numbers (k1_fcont_1 (k10_real_1 np_1 (k8_real_1 np_2 k32_sin_cos)) np_1) = k1_numbers \quad (12)$$

Assume the following.

$$k1_reset_1 k1_numbers (k1_fcont_1 (k10_real_1 np_1 (k8_real_1 np_2 k32_sin_cos)) np_1) = k1_numbers \quad (13)$$

Assume the following.

$$k6_toprealb (k1_fcont_1 (k10_real_1 np_1 (k8_real_1 np_2 k32_sin_cos)) np_1) = k1_fcont_1 (k10_real_1 np_1 (k8_real_1 np_2 k32_sin_cos)) np_1 \quad (14)$$

Assume the following.

$$k1_pre_topc k2_topalg_2 (k2_struct_0 k2_topalg_2) = k2_topalg_2 \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k7_xcmplx_0 X0 X1)) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k3_xcmplx_0 X0 X1)) \quad (17)$$

Assume the following.

$$(\neg v2_struct_0 k3_topmetr)\wedge((v1_pre_topc k3_topmetr)\wedge(v2_pre_topc k3_topmetr)) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_funct_1 X0) \wedge ((v1_fcont_1 X0) \wedge (m1_subset_1 X0 \\ (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))))) \Rightarrow ((v1_funct_1 \\ (k6_toprealb X0)) \wedge ((v1_funct_2 (k6_toprealb X0) (u1_struct_0 \\ (k1_pre_topc k2_topalg_2 (k5_toprealb (k1_relset_1 k1_numbers \\ X0)))) (u1_struct_0 (k1_pre_topc k2_topalg_2 (k5_toprealb (k2_relset_1 \\ k1_numbers X0)))))) \wedge (v5_pre_topc (k6_toprealb X0) (k1_pre_topc \\ k2_topalg_2 (k5_toprealb (k1_relset_1 k1_numbers X0))) (k1_pre_topc \\ k2_topalg_2 (k5_toprealb (k2_relset_1 k1_numbers X0)))))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow ((v1_funct_1 \\ (k1_fcont_1 X0 X1)) \wedge ((v1_funct_2 (k1_fcont_1 X0 X1) k1_numbers \\ k1_numbers) \wedge (v1_fcont_1 (k1_fcont_1 X0 X1)))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0. (l1_pre_topc X0) \Rightarrow (l1_struct_0 X0) \quad (21)$$

Assume the following.

$$(v2_pre_topc k3_topmetr) \wedge (l1_pre_topc k3_topmetr) \quad (22)$$

Assume the following.

$$v1_xreal_0 k31_sin_cos \quad (23)$$

Assume the following.

$$\forall X0. (l1_struct_0 X0) \Rightarrow (m1_subset_1 (k2_struct_0 X0) (k1_zfmisc_1 \\ (u1_struct_0 X0))) \quad (24)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow (\\ m1_subset_1 (k2_rcomp_1 X0 X1) (k1_zfmisc_1 k1_numbers)) \quad (25)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow ((v1_funct_1 \\ (k1_fcont_1 X0 X1)) \wedge ((v1_funct_2 (k1_fcont_1 X0 X1) k1_numbers \\ k1_numbers) \wedge (m1_subset_1 (k1_fcont_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\ k1_numbers k1_numbers)))))) \end{aligned} \quad (26)$$

Assume the following.

$$(v1_xreal_0 c5_toprealb) \wedge (v2_xxreal_0 c5_toprealb) \quad (27)$$

Assume the following.

$$\begin{aligned}
& (v1_funct_1 \ c50_toprealb) \wedge ((v1_funct_2 \ c50_toprealb \ (u1_struct_0 \\
& \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ c45_toprealb))) \ (u1_struct_0 \\
& \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ (k2_rcomp_1 \ (k10_real_1 \\
& \ np_1 \ np_2) \ (k7_real_1 \ (k10_real_1 \ np_1 \ np_2) \ c5_toprealb)))))) \wedge \\
& (m1_subset_1 \ c50_toprealb \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (u1_struct_0 \\
& \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ c45_toprealb))) \ (u1_struct_0 \\
& \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ (k2_rcomp_1 \ (k10_real_1 \\
& \ np_1 \ np_2) \ (k7_real_1 \ (k10_real_1 \ np_1 \ np_2) \ c5_toprealb))))))))) \quad (28)
\end{aligned}$$

Assume the following.

$$(\neg v1_xboole_0 \ c45_toprealb) \wedge (m1_subset_1 \ c45_toprealb \ (k1_zfmisc_1 \ k1_numbers)) \quad (29)$$

Assume the following.

$$c5_toprealb = np_1 \quad (30)$$

Assume the following.

$$\begin{aligned}
& c50_toprealb = k2_partfun1 \ k1_numbers \ k1_numbers \ (k1_fcont_1 \\
& \ (k10_real_1 \ np_1 \ (k8_real_1 \ np_2 \ k32_sin_cos)) \ np_1) \ (k5_toprealb \\
& \ c45_toprealb) \quad (31)
\end{aligned}$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ (k1_zfmisc_1 \ k1_numbers)) \Rightarrow (k5_toprealb \ X0 = X0) \quad (32)$$

Assume the following.

$$\forall X0. (l1_struct_0 \ X0) \Rightarrow (k2_struct_0 \ X0 = u1_struct_0 \ X0) \quad (33)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \ X0 \ k1_numbers) \wedge (v1_xreal_0 \ X1)) \Rightarrow (k7_real_1 \ X0 \ X1 = k7_real_1 \ X1 \ X0) \quad (34)$$

Assume the following.

$$\forall X0. (v1_xreal_0 \ X0) \Rightarrow (v1_xxreal_0 \ X0) \quad (35)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (v1_xreal_0 \ X0) \quad (36)$$

Theorem 1

$$\begin{aligned} & (v1_funct_1 \ c50_toprealb) \wedge ((v1_funct_2 \ c50_toprealb \ (u1_struct_0 \\ & \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ c45_toprealb))) \ (u1_struct_0 \\ & \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ (k2_rcomp_1 \ (k10_real_1 \\ & \ np_1 \ np_2) \ (k7_real_1 \ (k10_real_1 \ np_1 \ np_2) \ c5_toprealb)))))) \wedge \\ & \ ((v5_pre_topc \ c50_toprealb \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \\ & \ c45_toprealb)) \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ (k2_rcomp_1 \\ & \ (k10_real_1 \ np_1 \ np_2) \ (k7_real_1 \ (k10_real_1 \ np_1 \ np_2) \ c5_toprealb)))))) \wedge \\ & \ (m1_subset_1 \ c50_toprealb \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (u1_struct_0 \\ & \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ c45_toprealb))) \ (u1_struct_0 \\ & \ (k1_pre_topc \ k2_topalg_2 \ (k5_toprealb \ (k2_rcomp_1 \ (k10_real_1 \\ & \ np_1 \ np_2) \ (k7_real_1 \ (k10_real_1 \ np_1 \ np_2) \ c5_toprealb)))))))))) \end{aligned}$$