

t42_scmpds_5
(TMFHKaD2f4nmgLru6k5qkqabCqRTF6GLqsZ)

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Let $v1_ami_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_scmpds_2 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_compos_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_funct_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $v5_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $v6_compos_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_scmpds_5 : \iota \Rightarrow o$ be given. Let $v4_scmpds_4 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_scmpds_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_scmpds_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_afinsq_1 : \iota \Rightarrow o$ be given. Let $v2_compos_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_scmpds_4 : \iota \Rightarrow o$ be given. Let $k3_scmpds_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_compos_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_compos_1 : \iota \Rightarrow o$ be given. Let $k3_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $l1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_memstr_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_extpro_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k16_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k1_scmpds_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the

following.

$$\begin{aligned}
& \forall X0.((v1_ami_2 X0) \wedge (m1_subset_1 X0 (u1_struct_0 k1_scmpds_2))) \Rightarrow \\
& \quad (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 k5_numbers)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge ((v5_funct_1 X2 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge ((v1_partfun1 X2 (u1_struct_0 k1_scmpds_2)) \wedge (v5_memstr_0 X2 np_2 k1_scmpds_2 k6_numbers)))))) \Rightarrow (\forall X3.((\neg v1_xboole_0 X3) \wedge ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 k5_numbers) \wedge ((v5_relat_1 X3 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X3) \wedge ((v1_finset_1 X3) \wedge ((v1_afinsq_1 X3) \wedge ((v2_compos_1 X3 k1_scmpds_2) \wedge (v2_scmpds_4 X3)))))))))) \Rightarrow (\forall X4.((v4_scmpds_4 X4) \wedge ((v1_scmpds_5 X4) \wedge (m1_subset_1 X4 (u1_compos_1 k1_scmpds_2)))))) \Rightarrow (k1_funct_1 (k6_scmpds_4 (k3_scmpds_4 X3 X4) X2 X1) X0 = k1_funct_1 (k2_extpro_1 np_2 k1_scmpds_2 X4 (k6_scmpds_4 X3 X2 X1) X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v4_relat_1 X0 k5_numbers) \wedge ((v5_relat_1 X0 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 X0 k5_numbers)))))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge ((v5_funct_1 X1 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge ((v1_partfun1 X1 (u1_struct_0 k1_scmpds_2)) \wedge (v5_memstr_0 X1 np_2 k1_scmpds_2 k6_numbers)))))) \Rightarrow (\forall X2.((v1_scmpds_5 X2) \wedge (m1_subset_1 X2 (u1_compos_1 k1_scmpds_2)))) \Rightarrow (k2_extpro_1 np_2 k1_scmpds_2 X2 X1 = k6_scmpds_4 (k9_compos_1 k1_scmpds_2 X2) X1 X0))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. ((l1_compos_1 X0) \wedge (m1_subset_1 X1 (u1_compos_1 X0))) \Rightarrow (k9_compos_1 X0 X1 = k3_afinsq_1 X1) \tag{3}$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k3_afinsq_1 X0) \tag{4}$$

Assume the following.

$$\forall X0. ((v6_compos_0 X0 (u1_compos_1 k1_scmpds_2)) \wedge (m1_subset_1 X0 (u1_compos_1 k1_scmpds_2))) \Rightarrow (v2_compos_1 (k3_afinsq_1 X0) k1_scmpds_2) \tag{5}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_scmpds_5 X0) \wedge (m1_subset_1 X0 (u1_compos_1 k1_scmpds_2))) \Rightarrow \\ ((\neg v1_xboole_0 (k3_afinsq_1 X0)) \wedge (v1_relat_1 (k3_afinsq_1 \\ X0)) \wedge (v4_relat_1 (k3_afinsq_1 X0) k5_numbers) \wedge ((v5_relat_1 \\ (k3_afinsq_1 X0) (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 (k3_afinsq_1 \\ X0)) \wedge ((v1_finset_1 (k3_afinsq_1 X0)) \wedge ((v1_afinsq_1 (k3_afinsq_1 \\ X0)) \wedge (v2_scmpds_4 (k3_afinsq_1 X0)))))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. (l1_extpro_1 X1 X0) \Rightarrow ((l1_memstr_0 X1 X0) \wedge (l1_compos_1 X1)) \quad (7)$$

Assume the following.

$$(v1_extpro_1 k1_scmpds_2 np_2) \wedge (l1_extpro_1 k1_scmpds_2 np_2) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. k16_funcop_1 X0 X1 = k7_funcop_1 (k1_tarski X0) X1 \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. (m1_subset_1 X0 (u1_compos_1 k1_scmpds_2)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_compos_1 k1_scmpds_2)) \Rightarrow (k4_scmpds_4 X0 X1 = \\ k1_scmpds_4 (k9_compos_1 k1_scmpds_2 X0) (k9_compos_1 k1_scmpds_2 \\ X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v1_xboole_0 X0) \wedge (v1_relat_1 X0) \wedge ((v4_relat_1 \\ X0 k5_numbers) \wedge ((v5_relat_1 X0 (u1_compos_1 k1_scmpds_2)) \wedge \\ (v1_funct_1 X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0)))))) \Rightarrow (\\ \forall X1. (m1_subset_1 X1 (u1_compos_1 k1_scmpds_2)) \Rightarrow (k3_scmpds_4 \\ X0 X1 = k1_scmpds_4 X0 (k9_compos_1 k1_scmpds_2 X1))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0. k3_afinsq_1 X0 = k16_funcop_1 k6_numbers X0 \quad (12)$$

Theorem 1

$$\begin{aligned} \forall X0.((v1_ami_2 X0) \wedge (m1_subset_1 X0 (u1_struct_0 k1_scmpds_2))) \Rightarrow \\ (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 k5_numbers) \wedge ((v5_relat_1 X1 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 k5_numbers)))))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 k1_scmpds_2)) \wedge ((v1_funct_1 X2) \wedge ((v5_funct_1 X2 (k2_memstr_0 np_2 k1_scmpds_2)) \wedge ((v1_partfun1 X2 (u1_struct_0 k1_scmpds_2)) \wedge (v5_memstr_0 X2 np_2 k1_scmpds_2 k6_numbers)))))) \Rightarrow (\forall X3.((v6_compos_0 X3 (u1_compos_1 k1_scmpds_2)) \wedge ((v1_scmpds_5 X3) \wedge (m1_subset_1 X3 (u1_compos_1 k1_scmpds_2)))) \Rightarrow (\forall X4.((v4_scmpds_4 X4) \wedge ((v1_scmpds_5 X4) \wedge (m1_subset_1 X4 (u1_compos_1 k1_scmpds_2)))) \Rightarrow (k1_funct_1 (k6_scmpds_4 (k4_scmpds_4 X3 X4) X2 X1) X0 = k1_funct_1 (k2_extpro_1 np_2 k1_scmpds_2 X4 (k2_extpro_1 np_2 k1_scmpds_2 X3 X2)) X0)))))) \end{aligned}$$