

t38_scmfsa8a
(TMbkkQrmRHmvpSUSyczTHpfj1JEGSfJSfiJ)

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Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k1_scmfsa_2 : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_afinsq_1 : \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ 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 $np_3 : \iota$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r5_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_scmfsa7b : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_scmfsa6a : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_scmfsa8a : \iota \Rightarrow \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_card_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k4_compos_1 : \iota \Rightarrow \iota$ be given. Let $k8_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k6_memstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $r1_xreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_extpro_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let

$k2_compos_1 : \iota \Rightarrow \iota$ be given. 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_scmfsa_2)) \wedge ((v1_funct_1 X0) \wedge (v1_partfun1 \\
& X0 \ k5_numbers)))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge ((v1_relat_1 \\
& X1) \wedge ((v4_relat_1 X1 \ k5_numbers) \wedge ((v5_relat_1 X1 \ (u1_compos_1 \\
& k1_scmfsa_2)) \wedge ((v1_funct_1 X1) \wedge ((v1_finset_1 X1) \wedge (v1_afinsq_1 \\
& X1)))))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v1_relat_1 X2) \wedge \\
& ((v4_relat_1 X2 \ k5_numbers) \wedge ((v5_relat_1 X2 \ (u1_compos_1 \ k1_scmfsa_2)) \wedge \\
& ((v1_funct_1 X2) \wedge ((v1_finset_1 X2) \wedge (v1_afinsq_1 X2)))))) \Rightarrow \\
& (\forall X3.((v1_relat_1 X3) \wedge ((v4_relat_1 X3 \ (u1_struct_0 \ k1_scmfsa_2)) \wedge \\
& ((v1_funct_1 X3) \wedge ((v5_funct_1 X3 \ (k2_memstr_0 \ np_3 \ k1_scmfsa_2)) \wedge \\
& (v1_partfun1 X3 \ (u1_struct_0 \ k1_scmfsa_2)))))) \Rightarrow ((r5_scmfsa7b \\
& X1 \ X3 \ X0) \wedge (r6_scmfsa7b \ X1 \ X3 \ X0)) \Rightarrow ((k5_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \\
& X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& X3) \ (k2_nat_1 \ (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \\
& (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3)) \ np_2)) = k2_nat_1 \ (k2_nat_1 \\
& (k5_card_1 \ X1) \ (k5_card_1 \ X2)) \ np_1) \wedge ((k6_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \ (k8_memstr_0 \\
& np_3 \ k1_scmfsa_2 \ X3) \ (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \\
& X0 \ X1) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3))) = k6_memstr_0 \ np_3 \\
& k1_scmfsa_2 \ (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \\
& X2) \ np_1))) \ X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \\
& k1_scmfsa_2 \ X3) \ (k2_nat_1 \ (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \\
& X0 \ X1) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3)) \ np_2))) \wedge ((\forall X4. \\
& (m2_subset_1 \ X4 \ k1_numbers \ k5_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \ (k2_nat_1 \\
& (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \ (k8_memstr_0 \\
& np_3 \ k1_scmfsa_2 \ X3)) \ np_2) \ X4) \wedge (k3_extpro_1 \ np_3 \ k1_scmfsa_2 \\
& (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \ (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \\
& (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \ X2) \ (k4_compos_1 \ k1_scmfsa_2))) \\
& (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \\
& X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& X3) \ X4) = k2_compos_1 \ k1_scmfsa_2))) \wedge ((\forall X4.(m2_subset_1 \\
& X4 \ k1_numbers \ k5_numbers) \Rightarrow ((r1_xxreal_0 \ X4 \ (k8_extpro_1 \ np_3 \\
& k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& X3))) \Rightarrow (k5_memstr_0 \ np_3 \ k1_scmfsa_2 \ (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \\
& (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \ (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \\
& (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \ X2) \ (k4_compos_1 \ k1_scmfsa_2))) \\
& (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3) \ X4) = k5_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \ (k8_memstr_0 \\
& np_3 \ k1_scmfsa_2 \ X3) \ X4))) \wedge ((k5_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& (k5_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \\
& X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& X3) \ (k2_nat_1 \ (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ X1) \\
& (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3)) \ np_1)) = k5_card_1 \ X1) \wedge ((\\
& r1_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \ X2) \ np_1))) \\
& X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \\
& X3)) \wedge (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \ X0 \ (k3_scmfsa6a \\
& (k3_scmfsa6a \ (k3_scmfsa6a \ X1 \ (k1_scmfsa8a \ (k2_nat_1 \ (k5_card_1 \\
& X2) \ np_1))) \ X2) \ (k4_compos_1 \ k1_scmfsa_2))) \ (k8_memstr_0 \ np_3 \\
& k1_scmfsa_2 \ X3) = k2_nat_1 \ (k8_extpro_1 \ np_3 \ k1_scmfsa_2 \ (k1_funct_4 \\
& X0 \ X1) \ (k8_memstr_0 \ np_3 \ k1_scmfsa_2 \ X3)) \ np_2)))))))))
\end{aligned}$$

(1)

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge ((v1_relat_1 X0) \wedge ((v4_relat_1 \\ & X0 k5_numbers) \wedge ((v5_relat_1 X0 (u1_compos_1 k1_scmfsa_2)) \wedge \\ & (v1_funct_1 X0) \wedge ((v1_finset_1 X0) \wedge (v1_afinsq_1 X0)))))) \Rightarrow (\\ & \forall X1.((\neg v1_xboole_0 X1) \wedge ((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 k5_numbers) \wedge ((v5_relat_1 X1 (u1_compos_1 k1_scmfsa_2)) \wedge \\ & (v1_funct_1 X1) \wedge ((v1_finset_1 X1) \wedge (v1_afinsq_1 X1)))))) \Rightarrow (\\ & \forall X2.((v1_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 k1_scmfsa_2)) \wedge \\ & ((v1_funct_1 X2) \wedge ((v5_funct_1 X2 (k2_memstr_0 np_3 k1_scmfsa_2)) \wedge \\ & (v1_partfun1 X2 (u1_struct_0 k1_scmfsa_2)))))) \Rightarrow (\forall X3. \\ & ((v1_relat_1 X3) \wedge ((v4_relat_1 X3 k5_numbers) \wedge ((v5_relat_1 X3 \\ & (u1_compos_1 k1_scmfsa_2)) \wedge ((v1_funct_1 X3) \wedge (v1_partfun1 X3 \\ & k5_numbers)))))) \Rightarrow ((r5_scmfsa7b X0 X2 X3) \wedge (r6_scmfsa7b X0 X2 X3)) \Rightarrow \\ & (r1_extpro_1 np_3 k1_scmfsa_2 (k1_funct_4 X3 (k3_scmfsa6a (k3_scmfsa6a \\ & (k3_scmfsa6a X0 (k1_scmfsa8a (k2_nat_1 (k5_card_1 X1) np_1))) \\ & X1) (k4_compos_1 k1_scmfsa_2))) (k8_memstr_0 np_3 k1_scmfsa_2 \\ & X2)))))) \end{aligned}$$