

t59_rcomp_3 (TMSuAZ-
soKGtt4zFN2EqZdT6V66Ykpw2yVUw)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_topmetr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_rcomp_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_setfam_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_rcomp_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_setfam_1 : \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k3_finseq_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finseq_1 : \iota \Rightarrow o$ be given. Let $k9_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k3_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k12_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k4_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v1_card_1 : \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_seq_4 : \iota \Rightarrow \iota$ be given. Let $k4_seq_4 : \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k3_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\
 & (m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 (k4_topmetr \\
 & X0 X1)))))) \Rightarrow (\forall X3.(m1_rcomp_3 X3 X0 X1 X2) \Rightarrow (((m1_setfam_1 \\
 & X2 (u1_struct_0 (k4_topmetr X0 X1))) \wedge ((v1_tops_2 X2 (k4_topmetr \\
 & X0 X1)) \wedge ((v1_rcomp_3 X2 (k4_topmetr X0 X1)) \wedge (r1_xxreal_0 X0 X1)))))) \Rightarrow \\
 & (r1_xxreal_0 np_1 (k3_finseq_1 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finseq_1 X1)))\Rightarrow((X1 = k9_finseq_1 X0)\Leftrightarrow((k3_finseq_1 X1 = np_1)\wedge(k10_xtuple_0 X1 = k1_tarski X0))) \quad (2)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0)\Rightarrow(\forall X1.(v1_xxreal_0 X1)\Rightarrow(\forall X2.(v1_xxreal_0 X2)\Rightarrow((X0 \in k3_xxreal_1 X1 X2)\Leftrightarrow((\neg r1_xxreal_0 X0 X1)\wedge(r1_xxreal_0 X0 X2)))))) \quad (3)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0)\Rightarrow(\forall X1.(v1_xxreal_0 X1)\Rightarrow(\forall X2.(v1_xxreal_0 X2)\Rightarrow((X0 \in k1_xxreal_1 X1 X2)\Leftrightarrow((r1_xxreal_0 X1 X0)\wedge(r1_xxreal_0 X0 X2)))))) \quad (4)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow(k7_partfun1 X0 (k12_finseq_1 X0 X1) np_1 = X1)) \quad (5)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0)\Rightarrow(\forall X1.\forall X2.(m2_finseq_1 X2 X1)\Rightarrow(((r1_xxreal_0 np_1 X0)\wedge(r1_xxreal_0 X0 (k3_finseq_1 X2)))\Rightarrow(k7_partfun1 X1 X2 X0 = k1_funct_1 X2 X0))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0)\wedge(v1_xxreal_0 X1))\Rightarrow(r1_xxreal_0 X0 X0) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m2_finseq_1 X1 X0)\Leftrightarrow(m1_finseq_1 X1 X0) \quad (8)$$

Assume the following.

$$\forall X0.k9_setfam_1 X0 = k1_zfmisc_1 X0 \quad (9)$$

Assume the following.

$$\forall X0.k9_finseq_1 X0 = k5_finseq_1 X0 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0)\wedge(v1_xxreal_0 X1))\Rightarrow(k4_rcomp_1 X0 X1 = k3_xxreal_1 X0 X1) \quad (11)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow (k3_finseq_1 X0 = k1_card_1 X0) \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (k1_rcomp_1 X0 X1 = k1_xxreal_1 X0 X1) \quad (13)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (k12_finseq_1 X0 X1 = k5_finseq_1 X1) \quad (14)$$

Assume the following.

$$\forall X0. (v1_finset_1 X0) \Rightarrow ((v1_finset_1 (k1_card_1 X0)) \wedge (v1_card_1 (k1_card_1 X0))) \quad (15)$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k1_zfmisc_1 X0) \quad (16)$$

Assume the following.

$$\forall X0. \forall X1. (m2_finseq_1 X1 X0) \Rightarrow ((v1_funct_1 X1) \wedge ((v1_finseq_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers X0)))))) \quad (17)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((v1_xreal_0 X0) \wedge ((v1_xreal_0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 (k4_topmetr X0 X1))))))) \Rightarrow (\forall X3. (m1_rcomp_3 X3 X0 X1 X2) \Rightarrow (m2_finseq_1 X3 (k9_setfam_1 k1_numbers))) \quad (18)$$

Assume the following.

$$\forall X0. \forall X1. (m1_finseq_1 X1 X0) \Rightarrow ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finseq_1 X1))) \quad (19)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (m1_subset_1 (k1_rcomp_1 X0 X1) (k1_zfmisc_1 k1_numbers)) \quad (20)$$

Assume the following.

$$\forall X0. v1_card_1 (k1_card_1 X0) \quad (21)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 (k4_topmetr \\
& X0 X1)))) \Rightarrow (((m1_setfam_1 X2 (u1_struct_0 (k4_topmetr X0 X1))) \wedge \\
& ((v1_tops_2 X2 (k4_topmetr X0 X1)) \wedge (v1_rcomp_3 X2 (k4_topmetr \\
& X0 X1)) \wedge (r1_xxreal_0 X0 X1)))) \Rightarrow (\forall X3.(m2_finseq_1 X3 (k9_setfam_1 \\
& k1_numbers) \Rightarrow ((m1_rcomp_3 X3 X0 X1 X2) \Leftrightarrow ((r1_tarski (k2_relset_1 \\
& (k9_setfam_1 k1_numbers) X3) X2) \wedge ((k5_setfam_1 k1_numbers (k2_relset_1 \\
& (k9_setfam_1 k1_numbers) X3) = k1_rcomp_1 X0 X1) \wedge ((\forall X4. \\
& (v7_ordinal1 X4) \Rightarrow ((r1_xxreal_0 np_1 X4) \Rightarrow ((\neg(r1_xxreal_0 X4 \\
& (k3_finseq_1 X3)) \wedge (v1_xboole_0 (k7_partfun1 (k9_setfam_1 k1_numbers) \\
& X3 X4))) \wedge ((r1_xxreal_0 (k1_nat_1 X4 np_1) (k3_finseq_1 X3)) \Rightarrow \\
& ((r1_xxreal_0 (k5_seq_4 (k7_partfun1 (k9_setfam_1 k1_numbers) \\
& X3 X4)) (k5_seq_4 (k7_partfun1 (k9_setfam_1 k1_numbers) X3 (k1_nat_1 \\
& X4 np_1)))) \wedge ((r1_xxreal_0 (k4_seq_4 (k7_partfun1 (k9_setfam_1 \\
& k1_numbers) X3 X4)) (k4_seq_4 (k7_partfun1 (k9_setfam_1 k1_numbers) \\
& X3 (k1_nat_1 X4 np_1)))) \wedge (\neg r1_xxreal_0 (k4_seq_4 (k7_partfun1 \\
& (k9_setfam_1 k1_numbers) X3 X4)) (k5_seq_4 (k7_partfun1 (k9_setfam_1 \\
& k1_numbers) X3 (k1_nat_1 X4 np_1)))))) \wedge ((r1_xxreal_0 (k1_nat_1 \\
& X4 np_2) (k3_finseq_1 X3)) \Rightarrow (r1_xxreal_0 (k4_seq_4 (k7_partfun1 \\
& (k9_setfam_1 k1_numbers) X3 X4)) (k5_seq_4 (k7_partfun1 (k9_setfam_1 \\
& k1_numbers) X3 (k1_nat_1 X4 np_2)))))) \wedge (((k1_rcomp_1 X0 X1 \in \\
& X2) \Rightarrow (X3 = k12_finseq_1 (k1_zfmisc_1 k1_numbers) (k1_rcomp_1 X0 \\
& X1))) \wedge ((\neg k1_rcomp_1 X0 X1 \in X2) \Rightarrow ((\exists X4.(v1_xreal_0 X4) \wedge \\
& ((\neg r1_xxreal_0 X4 X0) \wedge ((r1_xxreal_0 X4 X1) \wedge (k1_funct_1 X3 np_1 = \\
& k3_rcomp_1 X0 X4)))) \wedge ((\exists X4.(v1_xreal_0 X4) \wedge ((r1_xxreal_0 \\
& X0 X4) \wedge ((\neg r1_xxreal_0 X1 X4) \wedge (k1_funct_1 X3 (k3_finseq_1 X3) = \\
& k4_rcomp_1 X4 X1)))) \wedge (\forall X4.(v7_ordinal1 X4) \Rightarrow (\neg(\neg r1_xxreal_0 \\
& X4 np_1) \wedge ((\neg r1_xxreal_0 (k3_finseq_1 X3) X4) \wedge (\forall X5.(v1_xreal_0 \\
& X5) \Rightarrow (\forall X6.(v1_xreal_0 X6) \Rightarrow (\neg(r1_xxreal_0 X0 X5) \wedge ((\neg r1_xxreal_0 \\
& X6 X5) \wedge ((r1_xxreal_0 X6 X1) \wedge (k1_funct_1 X3 X4 = k2_rcomp_1 X5 X6))))))))))))))))) \\
& \hspace{15em} (22)
\end{aligned}$$

Assume the following.

$$\forall X0.((v3_ordinal1 X0) \wedge (v1_finset_1 X0)) \Rightarrow (v7_ordinal1 X0) \quad (23)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (24)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xxreal_0 X0) \quad (25)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finseq_1 X0))) \Rightarrow \\
& ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0))) \quad (26)
\end{aligned}$$

Assume the following.

$$\forall X0.(v1_card_1 X0) \Rightarrow (v3_ordinal1 X0) \quad (27)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 (k4_topmetr \\ & X0 X1)))))) \Rightarrow (\forall X3.(m1_rcomp_3 X3 X0 X1 X2) \Rightarrow (((m1_setfam_1 \\ & X2 (u1_struct_0 (k4_topmetr X0 X1))) \wedge ((v1_tops_2 X2 (k4_topmetr \\ & X0 X1)) \wedge ((v1_rcomp_3 X2 (k4_topmetr X0 X1)) \wedge (r1_xxreal_0 X0 X1)))))) \Rightarrow \\ & (X1 \in k7_partfun1 (k9_setfam_1 k1_numbers) X3 (k3_finseq_1 X3)))))) \end{aligned}$$