

t22_ec_pf_1 (TMcU-
vmUZ6TKjTieHCL7YN49FX1Xe7XtUWTT)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_int_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k9_int_3 : \iota \Rightarrow \iota$ be given. Let $k2_binom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k8_group_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k7_card_1 : \iota \Rightarrow \iota$ be given. Let $k6_card_1 : \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_group_1 : \iota \Rightarrow \iota$ be given. Let $g6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v33_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_group_1 : \iota \Rightarrow o$ be given. Let $v5_group_1 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_vectsp_1 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v36_algstr_0 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $k7_int_3 : \iota \Rightarrow \iota$ be given. Let $k3_gr_cy_1 : \iota \Rightarrow \iota$ be given. Let $k1_funct_7 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $k6_numbers : \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u3_struct_0 : \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 \ np_2) \wedge (m2_subset_1 \ np_2 \ k1_numbers \ k5_numbers)) \wedge \\ & ((m1_subset_1 \ np_2 \ k5_numbers) \wedge (m1_subset_1 \ np_2 \ k1_numbers)) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. (v7_ordinal1 \ X0) \Rightarrow (k7_card_1 \ X0 = k6_card_1 \ X0) \quad (2)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5. \\ & ((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(((v1_funct_1 X3)\wedge(\\ & v1_funct_2 X3 (k2_zfmisc_1 X0 X1) X2)\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X1) X2))))))\wedge((m1_subset_1 X4 X0)\wedge \\ & (m1_subset_1 X5 X1))))\Rightarrow(k2_binop_1 X0 X1 X2 X3 X4 X5 = k1_binop_1 \\ & X3 X4 X5) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v7_ordinal1 X0)\wedge(v1_int_2 X0))\Rightarrow(\forall X1.(m1_subset_1 \\ & X1 (u1_struct_0 (k9_int_3 X0)))\Rightarrow(k2_binop_1 (u1_struct_0 (k9_int_3 \\ & X0)) k5_numbers (u1_struct_0 (k9_int_3 X0)) (k4_group_1 (k9_int_3 \\ & X0)) X1 np_2 = k8_group_1 (k9_int_3 X0) X1 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge(((v1_funct_1 X2)\wedge(\\ & (v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((m1_subset_1 X3 X0)\wedge \\ & (m1_subset_1 X4 X0))))\Rightarrow(\forall X5.\forall X6.\forall X7.\forall X8. \\ & \forall X9.(g6_algstr_0 X0 X1 X2 X3 X4 = g6_algstr_0 X5 X6 X7 X8 X9)\Rightarrow \\ & ((X0 = X5)\wedge((X1 = X6)\wedge((X2 = X7)\wedge((X3 = X8)\wedge(X4 = X9)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v7_ordinal1 X0)\wedge(v1_int_2 X0))\Rightarrow((\neg v6_struct_0 \\ & (k9_int_3 X0))\wedge((v13_algstr_0 (k9_int_3 X0))\wedge((v33_algstr_0 \\ & (k9_int_3 X0))\wedge((v3_group_1 (k9_int_3 X0))\wedge((v5_group_1 (k9_int_3 \\ & X0))\wedge((v2_rlvect_1 (k9_int_3 X0))\wedge((v3_rlvect_1 (k9_int_3 X0))\wedge \\ & ((v4_rlvect_1 (k9_int_3 X0))\wedge((v4_vectsp_1 (k9_int_3 X0))\wedge(\\ & v5_vectsp_1 (k9_int_3 X0)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1)\wedge(v3_ordinal1 k4_ordinal1) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v7_ordinal1 X0))\Rightarrow((\neg v2_struct_0 (k9_int_3 X0))\wedge(v36_algstr_0 (k9_int_3 X0))) \quad (9)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0)\Rightarrow((l2_algstr_0 X0)\wedge(l5_algstr_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow ((l3_struct_0 X0) \wedge (l3_algstr_0 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (l6_algstr_0 (k9_int_3 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow & ((v1_funct_1 (k7_int_3 X0)) \wedge ((v1_funct_2 \\ & (k7_int_3 X0) (k2_zfmisc_1 (k7_card_1 X0) (k7_card_1 X0)) (k7_card_1 \\ & X0)) \wedge (m1_subset_1 (k7_int_3 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & (k7_card_1 X0) (k7_card_1 X0)) (k7_card_1 X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow & ((v1_funct_1 \\ & (k4_group_1 X0)) \wedge ((v1_funct_2 (k4_group_1 X0) (k2_zfmisc_1 (\\ & u1_struct_0 X0) k5_numbers) (u1_struct_0 X0)) \wedge (m1_subset_1 (\\ & k4_group_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 \\ & X0) k5_numbers) (u1_struct_0 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow & ((v1_funct_1 (k3_gr_cy_1 X0)) \wedge (\\ & (v1_funct_2 (k3_gr_cy_1 X0) (k2_zfmisc_1 (k7_card_1 X0) (k7_card_1 \\ & X0)) (k7_card_1 X0)) \wedge (m1_subset_1 (k3_gr_cy_1 X0) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 (k7_card_1 X0) (k7_card_1 X0)) (k7_card_1 \\ & X0)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.m1_subset_1 (k1_funct_7 X0 X1) X1 \quad (17)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (k6_card_1 X0 = X0) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (v7_ordinal1 X2) \Rightarrow (k2_binom X0 X1 X2 = k1_binop_1 (k4_group_1 X0) \\ & X1 X2))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0) \Rightarrow (k9_int_3\ X0 = g6_algstr_0\ (k7_card_1\ X0)\ (k3_gr_cy_1\ X0)\ (k7_int_3\ X0)\ (k1_funct_7\ np_1\ (k7_card_1\ X0))\ (k1_funct_7\ k6_numbers\ (k7_card_1\ X0))) \quad (20)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k4_ordinal1) \Rightarrow (v7_ordinal1\ X0) \quad (21)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0) \Rightarrow (v7_ordinal1\ X0) \quad (22)$$

Assume the following.

$$\forall X0.(l4_algstr_0\ X0) \Rightarrow (((\neg v2_struct_0\ X0) \wedge (v4_vectsp_1\ X0)) \Rightarrow ((\neg v2_struct_0\ X0) \wedge (v1_group_1\ X0))) \quad (23)$$

Assume the following.

$$\forall X0.((v7_ordinal1\ X0) \wedge (v1_int_2\ X0)) \Rightarrow ((\neg v1_xboole_0\ X0) \wedge ((v7_ordinal1\ X0) \wedge (v1_int_2\ X0))) \quad (24)$$

Assume the following.

$$\forall X0.(l6_algstr_0\ X0) \Rightarrow ((v36_algstr_0\ X0) \Rightarrow (X0 = g6_algstr_0\ (u1_struct_0\ X0)\ (u1_algstr_0\ X0)\ (u2_algstr_0\ X0)\ (u3_struct_0\ X0)\ (u2_struct_0\ X0))) \quad (25)$$

Theorem 1

$$\forall X0.((v7_ordinal1\ X0) \wedge (v1_int_2\ X0)) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ (k9_int_3\ X0))) \Rightarrow (k2_binom\ (k9_int_3\ X0)\ X1\ np_2 = k8_group_1\ (k9_int_3\ X0)\ X1\ X1))$$