

t19_afinsq_2
(TMV5LV2g15uppyKVyzewJUvWmgh5u84zrYa)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $k3_afinsq_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_ordinal4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k23_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k7_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_afinsq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (k7_nat_d (k2_xcmplx_0 X0 X1) X1 = X0)) \quad (1)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v5_ordinal1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_finset_1 X1)))) \Rightarrow (k1_afinsq_1 (k1_ordinal4 X0 X1) = k2_nat_1 (k1_afinsq_1 X0) (k1_afinsq_1 X1))) \quad (2)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v5_ordinal1 X0) \wedge (v1_finset_1 X0)))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge ((v5_ordinal1 X1) \wedge (v1_finset_1 X1)))) \Rightarrow (k2_afinsq_2 (k1_ordinal4 X0 X1) (k1_afinsq_1 X0) = X1)) \quad (3)$$

Assume the following.

$$((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Leftrightarrow(m1_subset_1 X2 X1)) \quad (5)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k5_numbers)\wedge(v7_ordinal1 X1))\Rightarrow(k2_nat_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0)\wedge(v7_ordinal1 X1))\Rightarrow(k23_binop_2 X0 X1 = k2_xcmplx_0 X0 X1) \quad (8)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge((v5_ordinal1 X0)\wedge((v1_funct_1 X0)\wedge(v1_finset_1 X0))))\Rightarrow(k1_afinsq_1 X0 = k1_card_1 X0) \quad (9)$$

Assume the following.

$$\forall X0.(v1_relat_1 X0)\Rightarrow(k5_relat_1 X0 (k9_xtuple_0 X0) = X0) \quad (10)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge((v5_ordinal1 X0)\wedge((v1_funct_1 X0)\wedge(v1_finset_1 X0))))\Rightarrow(k1_card_1 X0 = k9_xtuple_0 X0) \quad (11)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1)\wedge(v3_ordinal1 k4_ordinal1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_relat_1 X0)\wedge((v5_ordinal1 X0)\wedge((v1_funct_1 X0)\wedge(v1_finset_1 X0))))\wedge((v1_relat_1 X1)\wedge((v5_ordinal1 X1)\wedge((v1_funct_1 X1)\wedge(v1_finset_1 X1)))))\Rightarrow((v1_relat_1 (k1_ordinal4 X0 X1))\wedge((v5_ordinal1 (k1_ordinal4 X0 X1))\wedge((v1_funct_1 (k1_ordinal4 X0 X1))\wedge(v1_finset_1 (k1_ordinal4 X0 X1)))))) \quad (13)$$

Assume the following.

$$\neg v1_xboole_0 k1_numbers \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0)\wedge(v7_ordinal1 X1))\Rightarrow(v7_ordinal1 (k2_xcmplx_0 X0 X1)) \quad (15)$$

Assume the following.

$$m1_subset_1 \ k5_numbers \ (k1_zfmisc_1 \ k1_numbers) \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (&((v1_relat_1 \ X0) \wedge ((v5_ordinal1 \ X0) \wedge (\\ &v1_funct_1 \ X0))) \wedge ((v1_relat_1 \ X1) \wedge ((v5_ordinal1 \ X1) \wedge (v1_funct_1 \\ &X1)))) \Rightarrow ((v1_relat_1 \ (k1_ordinal4 \ X0 \ X1)) \wedge ((v5_ordinal1 \ (k1_ordinal4 \\ &X0 \ X1)) \wedge (v1_funct_1 \ (k1_ordinal4 \ X0 \ X1)))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0. ((v1_relat_1 \ X0) \wedge ((v5_ordinal1 \ X0) \wedge ((v1_funct_1 \ X0) \wedge (v1_finset_1 \ X0)))) \Rightarrow (m2_subset_1 \ (k1_afinsq_1 \ X0) \ k1_numbers \ k5_numbers) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0. ((v1_relat_1 \ X0) \wedge ((v1_funct_1 \ X0) \wedge ((v5_ordinal1 \\ &X0) \wedge (v1_finset_1 \ X0)))) \Rightarrow (\forall X1. (v7_ordinal1 \ X1) \Rightarrow (\forall X2. \\ &(v7_ordinal1 \ X2) \Rightarrow (k3_afinsq_2 \ X0 \ X1 \ X2 = k2_afinsq_2 \ (k5_relat_1 \\ &X0 \ X2) \ (k7_nat_d \ X1 \ np_1)))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k4_ordinal1) \Rightarrow (v7_ordinal1 \ X0) \quad (20)$$

Theorem 1

$$\begin{aligned} \forall X0. ((v1_relat_1 \ X0) \wedge ((v1_funct_1 \ X0) \wedge ((v5_ordinal1 \\ &X0) \wedge (v1_finset_1 \ X0)))) \Rightarrow (\forall X1. ((v1_relat_1 \ X1) \wedge ((v1_funct_1 \\ &X1) \wedge ((v5_ordinal1 \ X1) \wedge (v1_finset_1 \ X1)))) \Rightarrow (k3_afinsq_2 \ (k1_ordinal4 \\ &X0 \ X1) \ (k23_binop_2 \ (k1_afinsq_1 \ X0) \ np_1) \ (k23_binop_2 \ (k1_afinsq_1 \\ &X0) \ (k1_afinsq_1 \ X1)) = X1)) \end{aligned}$$