

t10_afinsq_2 (TMPTBf-
fJxFCgZYJSBb2DgjH9NKT4mTvS7ME)

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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 $k2_afinsq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $r1_xreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xreal_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k7_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k23_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $k10_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow (\forall X1.((v1_relat_1\ X1) \wedge ((\\ v1_funct_1\ X1) \wedge ((v5_ordinal1\ X1) \wedge (v1_finset_1\ X1)))) \Rightarrow ((r1_xreal_0 \\ (k1_afinsq_1\ X1)\ X0) \Rightarrow (k2_afinsq_2\ X1\ X0 = k1_xboole_0))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xreal_0\ X0) \Rightarrow (\forall X1.(v1_xreal_0\ X1) \Rightarrow ((r1_xxreal_0\ X0\ X1) \Rightarrow (r1_xxreal_0\ k6_numbers\ (k6_xcmplx_0\ X1\ X0)))) \quad (2)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0) \Rightarrow (r1_xxreal_0\ k6_numbers\ X0) \quad (3)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0\ X0) \Rightarrow (\forall X1.(v1_xcmplx_0\ X1) \Rightarrow (X0 = k6_xcmplx_0\ (k2_xcmplx_0\ X0\ X1)\ X1)) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0\ X0) \Rightarrow (k1_xreal_0\ X0\ X0 = k6_numbers) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 \text{ } k6_numbers = X0) \quad (6)$$

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.

$$\forall X0.\forall X1.((v7_ordinal1 X0) \wedge (v7_ordinal1 X1)) \Rightarrow (k7_nat_d X0 X1 = k1_xreal_0 X0 X1) \quad (8)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0) \wedge (v7_ordinal1 X1)) \Rightarrow (k23_binop_2 X0 X1 = k2_xcmplx_0 X0 X1) \quad (10)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \Rightarrow (k1_afinsq_1 X0 = k1_card_1 X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (k10_binop_2 X0 X1 = k6_xcmplx_0 X0 X1) \quad (12)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \Rightarrow (k1_card_1 X0 = k9_xtuple_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge ((v5_ordinal1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_finset_1 X0)))) \Rightarrow (v7_ordinal1 (k9_xtuple_0 X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v5_ordinal1 X0) \wedge (v1_finset_1 X0)))) \wedge (v7_ordinal1 X1)) \Rightarrow ((v1_relat_1 (k2_afinsq_2 X0 X1)) \wedge ((v1_funct_1 (k2_afinsq_2 X0 X1)) \wedge ((v5_ordinal1 (k2_afinsq_2 X0 X1)) \wedge (v1_finset_1 (k2_afinsq_2 X0 X1)))))) \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (((r1_xxreal_0 \\ k6_numbers (k6_xcmplx_0 X0 X1) \Rightarrow (k1_xreal_0 X0 X1 = k6_xcmplx_0 \\ X0 X1)) \wedge ((\neg r1_xxreal_0 k6_numbers (k6_xcmplx_0 X0 X1) \Rightarrow (k1_xreal_0 \\ X0 X1 = k6_numbers)))))) \end{aligned} \quad (16)$$

Assume the following.

$$k1_xboole_0 = the (\lambda X0 : \iota.v1_xboole_0 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v5_ordinal1 \\ X0) \wedge (v1_finset_1 X0)))) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\forall X2. \\ ((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge ((v5_ordinal1 X2) \wedge (v1_finset_1 \\ X2)))) \Rightarrow ((X2 = k2_afinsq_2 X0 X1) \Leftrightarrow ((k1_afinsq_1 X2 = k7_nat_d (k1_afinsq_1 \\ X0) X1) \wedge (\forall X3.(v7_ordinal1 X3) \Rightarrow ((X3 \in k1_relset_1 k5_numbers \\ X2) \Rightarrow (k1_funct_1 X2 X3 = k1_funct_1 X0 (k23_binop_2 X3 X1)))))))))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0) \wedge (v7_ordinal1 X1)) \Rightarrow (k23_binop_2 X0 X1 = k23_binop_2 X1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xcmplx_0 X0) \quad (20)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xxreal_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xreal_0 X0) \quad (22)$$

Theorem 1

$$\forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge ((v5_ordinal1 \\ X0) \wedge (v1_finset_1 X0)))) \Rightarrow (k2_afinsq_2 X0 k6_numbers = X0)$$