

t45_nat_d

(TMcq4hhNds44nzGXsmHVgZX3fR6DZhrMQj6)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k7_nat.d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $np_1 : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k1_xreal_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k1_nat.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $np_3 : \iota$ 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 $np_0 : \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_int.1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xreal_0 X2) \Rightarrow ((r1_xxreal_0 X0 X1) \Leftrightarrow (r1_xxreal_0 (k6_xcmplx_0 \\ & X0 X2) (k6_xcmplx_0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\neg(\neg \\ & r1_xxreal_0 X0 X1) \wedge ((\neg v3_xxreal_0 X1) \wedge (\neg v2_xxreal_0 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 \\ & X0 X1) \Rightarrow (r1_xxreal_0 k6_numbers (k6_xcmplx_0 X1 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\neg(r1_xxreal_0 \\ & X0 X1) \wedge ((\neg v3_xxreal_0 X0) \wedge (v3_xxreal_0 X1)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(\forall X1.(v7_ordinal1\ X1)\Rightarrow(r1_xxreal_0\ (k7_nat_d\ X0\ X1)\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.(v1_xreal_0\ X0)\Rightarrow(k1_xreal_0\ X0\ X0 = k6_numbers) \quad (7)$$

Assume the following.

$$\forall X0.(v1_xxreal_0\ X0)\Rightarrow(\forall X1.(v1_xxreal_0\ X1)\Rightarrow((r1_xxreal_0\ X0\ X1)\wedge(r1_xxreal_0\ X1\ X0))\Rightarrow(X0 = X1)) \quad (8)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow(\forall X1.(v7_ordinal1\ X1)\Rightarrow((\neg r1_xxreal_0\ (k1_nat_1\ X1\ np_1)\ X0)\Leftrightarrow(r1_xxreal_0\ X0\ X1))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0\ X0)\wedge(v1_xcmplx_0\ X1))\Rightarrow(k2_xcmplx_0\ (k4_xcmplx_0\ X0)\ (k4_xcmplx_0\ X1) = k4_xcmplx_0\ (k2_xcmplx_0\ X0\ X1)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1_xcmplx_0\ X0)\wedge((v1_xcmplx_0\ X1)\wedge(v1_xcmplx_0\ X2)))\Rightarrow(k2_xcmplx_0\ (k2_xcmplx_0\ X0\ X1)\ X2 = k2_xcmplx_0\ X0\ (k2_xcmplx_0\ X1\ X2)) \quad (11)$$

Assume the following.

$$((v2_xxreal_0\ np_3)\wedge(m2_subset_1\ np_3\ k1_numbers\ k5_numbers))\wedge((m1_subset_1\ np_3\ k5_numbers)\wedge(m1_subset_1\ np_3\ k1_numbers)) \quad (12)$$

Assume the following.

$$((v2_xxreal_0\ np_2)\wedge(m2_subset_1\ np_2\ k1_numbers\ k5_numbers))\wedge((m1_subset_1\ np_2\ k5_numbers)\wedge(m1_subset_1\ np_2\ k1_numbers)) \quad (13)$$

Assume the following.

$$((v2_xxreal_0\ np_1)\wedge(m2_subset_1\ np_1\ k1_numbers\ k5_numbers))\wedge((m1_subset_1\ np_1\ k5_numbers)\wedge(m1_subset_1\ np_1\ k1_numbers)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0\ X0)\wedge(v1_xcmplx_0\ X1))\Rightarrow(k2_xcmplx_0\ X0\ (k4_xcmplx_0\ X1) = k6_xcmplx_0\ X0\ X1) \quad (15)$$

Assume the following.

$$(m2_subset_1\ np_0\ k1_numbers\ k5_numbers) \wedge ((m1_subset_1\ np_0\ k5_numbers) \wedge (m1_subset_1\ np_0\ k1_numbers)) \quad (16)$$

Assume the following.

$$v1_xboole_0\ np_0 \quad (17)$$

Assume the following.

$$k4_xcmplx_0\ (k4_xcmplx_0\ np_2) = np_2 \quad (18)$$

Assume the following.

$$k4_xcmplx_0\ (k4_xcmplx_0\ np_1) = np_1 \quad (19)$$

Assume the following.

$$k6_xcmplx_0\ np_3\ np_2 = np_1 \quad (20)$$

Assume the following.

$$k6_xcmplx_0\ np_1\ np_1 = np_0 \quad (21)$$

Assume the following.

$$k6_xcmplx_0\ np_0\ np_2 = k4_xcmplx_0\ np_2 \quad (22)$$

Assume the following.

$$k6_xcmplx_0\ np_0\ np_1 = k4_xcmplx_0\ np_1 \quad (23)$$

Assume the following.

$$k2_xcmplx_0\ np_1\ np_1 = np_2 \quad (24)$$

Assume the following.

$$k2_xcmplx_0\ np_0\ np_1 = np_1 \quad (25)$$

Assume the following.

$$\neg v1_xreal_0\ np_0\ (k4_xcmplx_0\ np_1) \quad (26)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0) \wedge (v7_ordinal1\ X1)) \Rightarrow (k7_nat_d\ X0\ X1 = k1_xreal_0\ X0\ X1) \quad (27)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (28)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0)\wedge(m1_subset_1 X1 k5_numbers))\Rightarrow (k1_nat_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (30)$$

Assume the following.

$$\exists X0.(v1_xboole_0 X0)\wedge(v1_xxreal_0 X0) \quad (31)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0)\Rightarrow(k4_xcmplx_0 (k4_xcmplx_0 X0) = X0) \quad (32)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k6_xcmplx_0 X0 X1)) \quad (33)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k2_xcmplx_0 X0 X1)) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.((v1_int_1 X0)\wedge(v1_int_1 X1))\Rightarrow(v1_int_1 (k6_xcmplx_0 X0 X1)) \quad (35)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow((v1_xcmplx_0 (k4_xcmplx_0 X0))\wedge(v1_xreal_0 (k4_xcmplx_0 X0))) \quad (36)$$

Assume the following.

$$\forall X0.(v1_int_1 X0)\Rightarrow((v1_xcmplx_0 (k4_xcmplx_0 X0))\wedge(v1_int_1 (k4_xcmplx_0 X0))) \quad (37)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0)\wedge(v7_ordinal1 X1))\Rightarrow(v7_ordinal1 (k2_xcmplx_0 X0 X1)) \quad (38)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0)\wedge(v7_ordinal1 X1))\Rightarrow(m1_subset_1 (k7_nat_d X0 X1) k5_numbers) \quad (39)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (v1_xcmplx_0 (k4_xcmplx_0 X0)) \quad (40)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (((r1_xxreal_0 \\ k6_numbers (k6_xcmplx_0 X0 X1)) \Rightarrow (k1_xreal_0 X0 X1 = k6_xcmplx_0 \\ X0 X1)) \wedge ((\neg r1_xxreal_0 k6_numbers (k6_xcmplx_0 X0 X1)) \Rightarrow (k1_xreal_0 \\ X0 X1 = k6_numbers)))) \end{aligned} \quad (41)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0) \wedge (v1_xcmplx_0 X1)) \Rightarrow (k2_xcmplx_0 X0 X1 = k2_xcmplx_0 X1 X0) \quad (42)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1) \Rightarrow (v7_ordinal1 X0) \quad (43)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v7_ordinal1 X0) \quad (44)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (45)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (46)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xcmplx_0 X0) \quad (47)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow ((v7_ordinal1 X0) \wedge (\neg v3_xxreal_0 X0)) \quad (48)$$

Assume the following.

$$\forall X0.(v1_int_1 X0) \Rightarrow (v1_xreal_0 X0) \quad (49)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xxreal_0 X0) \quad (50)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xreal_0 X0) \quad (51)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k5_numbers) \Rightarrow (\neg v3_xreal_0 X0) \quad (52)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_int_1 X0) \quad (53)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (54)$$

Theorem 1

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (k7_nat_d X0 np_2 = k7_nat_d (k7_nat_d X0 np_1) np_1)$$