

t12_nat_4 (TMcDRXLGcwVgF-
coy zx3uCB1GgN7VAzRbQoa)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_int_2 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ 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 $r1_nat_d : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_int_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow ((\\ r1_nat_d X0 X1) \Rightarrow ((r1_xxreal_0 X1 k6_numbers) \vee ((X0 = np_1) \vee ((\\ X0 = X1) \vee ((\neg r1_xxreal_0 X0 np_1) \wedge (\neg r1_xxreal_0 X1 X0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (((r1_xxreal_0 \\ X0 X1) \wedge (v2_xxreal_0 X0)) \Rightarrow (v2_xxreal_0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge \\ ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow (\\ r1_xxreal_0 X0 X0) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow((r1_nat_d\ X0\ X1)\Leftrightarrow(r1_int_1\ X0\ X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0\ X0)\wedge((\neg v1_xboole_0\ X1)\wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ X0))))\Rightarrow(\forall X2.(m2_subset_1\ X2\ X0\ X1)\Leftrightarrow(m1_subset_1\ X2\ X1)) \quad (8)$$

Assume the following.

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

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (10)$$

Assume the following.

$$\exists X0.(v1_xboole_0\ X0)\wedge((v1_xcmplx_0\ X0)\wedge((v1_xxreal_0\ X0)\wedge(v1_xreal_0\ X0))) \quad (11)$$

Assume the following.

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

Assume the following.

$$v1_xboole_0\ k1_xboole_0 \quad (13)$$

Assume the following.

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

Assume the following.

$$m1_subset_1\ k5_numbers\ (k1_zfmisc_1\ k1_numbers) \quad (15)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow((v1_int_2\ X0)\Leftrightarrow((\neg r1_xxreal_0\ X0\ np_1)\wedge(\forall X1.(v7_ordinal1\ X1)\Rightarrow(\neg(r1_int_1\ X1\ X0)\wedge((X1\neq np_1)\wedge(X1\neq X0)))))) \quad (16)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Leftrightarrow(X0 \in k4_ordinal1) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0\ X0)\wedge(v1_xxreal_0\ X1))\Rightarrow((r1_xxreal_0\ X0\ X1)\vee(r1_xxreal_0\ X1\ X0)) \quad (18)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1) \Rightarrow (v7_ordinal1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (20)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (21)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xxreal_0 X0) \quad (22)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xreal_0 X0) \quad (23)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (24)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v7_ordinal1 X0) \Rightarrow ((\neg(\neg v1_int_2 X0) \wedge ((\neg r1_xxreal_0 \\ & X0 np_1) \wedge (\forall X1.(m2_subset_1 X1 k1_numbers k5_numbers) \Rightarrow \\ & (\neg(r1_nat_d X1 X0) \wedge ((\neg r1_xxreal_0 X1 np_1) \wedge (\neg r1_xxreal_0 X0 \\ & X1)))))) \wedge (\neg(\neg(\neg r1_xxreal_0 X0 np_1) \wedge (\forall X1.(m2_subset_1 \\ & X1 k1_numbers k5_numbers) \Rightarrow (\neg(r1_nat_d X1 X0) \wedge ((\neg r1_xxreal_0 \\ & X1 np_1) \wedge (\neg r1_xxreal_0 X0 X1)))))) \wedge (v1_int_2 X0))) \end{aligned}$$