

t71_xxreal_3
(TMLNiJKz3tbA6iFrGR4j8n3y1PNS7V4Z3tk)

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Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k4_xxreal_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ 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 $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k7_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k1_xxreal_0 : \iota$ be given. Let $k2_xxreal_0 : \iota$ be given. Let $k5_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v7_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X1) \wedge ((\neg v3_xxreal_0 X1) \wedge (\neg v2_xxreal_0 X0)))) \quad (1)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow ((v1_xboole_0 X0) \vee ((v2_xxreal_0 X1) \vee (v3_xxreal_0 X0)))))) \quad (2)$$

Assume the following.

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

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k7_xcmplx_0 X0 np_1 = X0) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow (((r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 k6_numbers X2)) \Rightarrow (r1_xxreal_0 (k3_xcmplx_0 X0 X2) (k3_xcmplx_0 X1 X2)))))) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee ((v3_xxreal_0 X0) \vee (v2_xxreal_0 X1)))))) \quad (6)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (\neg(\neg X0 \in k1_numbers) \wedge ((X0 \neq k1_xxreal_0) \wedge (X0 \neq k2_xxreal_0))) \quad (7)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k7_xcmplx_0 np_1 X0 = k5_xcmplx_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k3_xcmplx_0 X0 (k4_xcmplx_0 np_1) = k4_xcmplx_0 X0) \quad (9)$$

Assume the following.

$$((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \quad (10)$$

Assume the following.

$$\neg v1_xboole_0 np_1 \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0) \wedge (v1_xcmplx_0 X1)) \Rightarrow (k7_xcmplx_0 (k5_xcmplx_0 X0) (k5_xcmplx_0 X1) = k7_xcmplx_0 X1 X0) \quad (12)$$

Assume the following.

$$v1_xboole_0 np_0 \quad (13)$$

Assume the following.

$$k4_xcmplx_0 (k4_xcmplx_0 np_1) = np_1 \quad (14)$$

Assume the following.

$$r1_xxreal_0 np_0 np_0 \quad (15)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (16)$$

Assume the following.

$$\exists X0.(\neg v1_xboole_0 X0) \wedge (v7_ordinal1 X0) \quad (17)$$

Assume the following.

$$\exists X0.(v1_xboole_0 X0) \wedge ((v1_xcmplx_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (v1_xreal_0 X0))) \quad (18)$$

Assume the following.

$$\exists X0.(v1_xreal_0 X0) \wedge ((v3_xreal_0 X0) \wedge (\neg v1_xreal_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k5_xcmplx_0 (k5_xcmplx_0 X0) = X0) \quad (20)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k4_xcmplx_0 (k4_xcmplx_0 X0) = X0) \quad (21)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_xreal_0 X0) \wedge \\ & ((v1_xreal_0 X1) \wedge ((v1_xcmplx_0 X2) \wedge (v1_xcmplx_0 X3)))) \Rightarrow (((\\ & X0 = X2) \wedge (X1 = X3)) \Rightarrow (k4_xreal_3 X0 X1 = k3_xcmplx_0 X2 X3)) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v1_xboole_0 X0) \wedge (v1_xcmplx_0 X0)) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge (v1_xcmplx_0 X1))) \Rightarrow (\neg v1_xboole_0 (k7_xcmplx_0 \\ & X0 X1)) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v1_xcmplx_0 X0)) \Rightarrow ((\neg v1_xboole_0 \\ & (k4_xcmplx_0 X0)) \wedge (v1_xcmplx_0 (k4_xcmplx_0 X0))) \end{aligned} \quad (24)$$

Assume the following.

$$v3_xreal_0 k2_xreal_0 \quad (25)$$

Assume the following.

$$v2_xreal_0 k1_xreal_0 \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow ((v1_xcmplx_0 (k4_xcmplx_0 X0)) \wedge \\ & (v1_xreal_0 (k4_xcmplx_0 X0))) \end{aligned} \quad (27)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow ((v1_xreal_0 \\ & (k4_xreal_3 X0 X1)) \wedge (v1_xreal_0 (k4_xreal_3 X0 X1))) \end{aligned} \quad (28)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_xboole_0 X0) \wedge (v1_xreal_0 X0)) \wedge \\ & (v1_xreal_0 X1)) \Rightarrow ((v1_xboole_0 (k4_xreal_3 X0 X1)) \wedge (v1_xreal_0 \\ & (k4_xreal_3 X0 X1))) \end{aligned} \quad (29)$$

Assume the following.

$$v1_xxreal_0 \ k2_xxreal_0 \quad (30)$$

Assume the following.

$$\neg v1_xreal_0 \ k1_xxreal_0 \quad (31)$$

Assume the following.

$$v1_xxreal_0 \ k1_xxreal_0 \quad (32)$$

Assume the following.

$$\neg v1_xreal_0 \ k2_xxreal_0 \quad (33)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 \ X0) \Rightarrow (v1_xcmplx_0 \ (k5_xcmplx_0 \ X0)) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow (v1_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1)) \quad (35)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 \ X0) \Rightarrow (\forall X1.(v1_xcmplx_0 \ X1) \Rightarrow (k7_xcmplx_0 \ X0 \ X1 = k3_xcmplx_0 \ X0 \ (k5_xcmplx_0 \ X1))) \quad (36)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 \ X0) \Rightarrow (\forall X1.(v1_xxreal_0 \ X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 \ X2) \Rightarrow (((v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1)) \Rightarrow ((X2 = \\ & k4_xxreal_3 \ X0 \ X1) \Leftrightarrow (\exists X3.(v1_xcmplx_0 \ X3) \wedge (\exists X4. \\ & (v1_xcmplx_0 \ X4) \wedge ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = k3_xcmplx_0 \ X3 \ X4)))))) \wedge \\ & ((\neg(\neg(v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1))) \wedge (((v2_xxreal_0 \ X0) \wedge \\ & (v2_xxreal_0 \ X1)) \vee ((v3_xxreal_0 \ X0) \wedge (v3_xxreal_0 \ X1))) \wedge (\neg \\ & (X2 = k4_xxreal_3 \ X0 \ X1) \Leftrightarrow (X2 = k1_xxreal_0))) \wedge ((\neg(\neg(v1_xreal_0 \\ & X0) \wedge (v1_xreal_0 \ X1))) \wedge (((v2_xxreal_0 \ X0) \wedge (v3_xxreal_0 \ X1)) \vee \\ & ((v3_xxreal_0 \ X0) \wedge (v2_xxreal_0 \ X1))) \wedge (\neg(X2 = k4_xxreal_3 \ X0 \ X1) \Leftrightarrow \\ & (X2 = k2_xxreal_0)))) \wedge (\neg(\neg(v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1))) \wedge \\ & ((\neg(\neg(v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1))) \wedge (((v2_xxreal_0 \ X0) \wedge (\\ & v2_xxreal_0 \ X1)) \vee ((v3_xxreal_0 \ X0) \wedge (v3_xxreal_0 \ X1)))) \wedge ((\neg \\ & (\neg(v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1))) \wedge (((v2_xxreal_0 \ X0) \wedge (v3_xxreal_0 \\ & X1)) \vee ((v3_xxreal_0 \ X0) \wedge (v2_xxreal_0 \ X1)))) \wedge (\neg(X2 = k4_xxreal_3 \\ & X0 \ X1) \Leftrightarrow (X2 = k6_numbers))))))))) \end{aligned} \quad (37)$$

Assume the following.

$$k1_xxreal_0 = k1_numbers \quad (38)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ & ((X0 \in k1_numbers) \wedge (X1 \in k1_numbers)) \Rightarrow ((r1_xxreal_0 X0 X1) \Leftrightarrow (\exists X2. \\ & (m1_subset_1 X2 k1_numbers) \wedge (\exists X3.(m1_subset_1 X3 k1_numbers) \wedge \\ & ((X2 = X0) \wedge ((X3 = X1) \wedge (r1_xxreal_0 X2 X3)))))) \wedge ((\neg(X0 \in k1_numbers) \wedge \\ & (X1 \in k1_numbers)) \Rightarrow ((r1_xxreal_0 X0 X1) \Leftrightarrow ((X0 = k2_xxreal_0) \vee (\\ & X1 = k1_xxreal_0)))))) \end{aligned} \quad (39)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Leftrightarrow (X0 \in k1_numbers) \quad (40)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow (k4_xxreal_3 X0 X1 = k4_xxreal_3 X1 X0) \quad (41)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0) \wedge (v1_xcmplx_0 X1)) \Rightarrow (k3_xcmplx_0 X0 X1 = k3_xcmplx_0 X1 X0) \quad (42)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (v7_ordinal1 X0) \quad (43)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v3_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v2_xxreal_0 X0))) \quad (44)$$

Assume the following.

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

Assume the following.

$$\forall X0.((v1_xreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (46)$$

Assume the following.

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

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xreal_0 X0) \quad (48)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xcmplx_0 X0) \quad (49)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge ((\neg v3_xxreal_0 X0) \wedge (\neg v1_xreal_0 X0))) \Rightarrow ((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \quad (50)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xcmplx_0 X0) \quad (51)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (52)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (((r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 k6_numbers \\ & X2)) \Rightarrow (r1_xxreal_0 (k4_xxreal_3 X0 X2) (k4_xxreal_3 X1 X2)))))) \end{aligned}$$