

t72_xxreal_3

(TMX5ByYxt1bn1ZWKpsp51XvkKtUbBPrpuFm)

October 27, 2020

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 $k1_xxreal_0 : \iota$ 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 $k3_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xxreal_0 : \iota$ be given. Let $k1_numbers : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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.

$$\forall X0.\forall X1.\neg(v1_xboole_0 X0) \wedge ((X0 \neq X1) \wedge (v1_xboole_0 X1)) \quad (2)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2.(v1_xxreal_0 X2) \Rightarrow (((r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 k6_numbers X2)) \Rightarrow (r1_xxreal_0 (k4_xxreal_3 X0 X2) (k4_xxreal_3 X1 X2)))))) \quad (3)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow ((k4_xxreal_3 X0 X1 = k4_xxreal_3 X0 X2) \Rightarrow ((X0 = k6_numbers) \vee (X1 = X2)))))) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2.(v1_xxreal_0 X2) \Rightarrow (k4_xxreal_3 X0 (k4_xxreal_3 X1 X2) = k4_xxreal_3 (k4_xxreal_3 X0 X1) X2))) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (r1_xxreal_0 X0 k1_xxreal_0) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow ((X0 \in k3_xxreal_1 X1 X2) \Leftrightarrow ((\neg r1_xxreal_0 X0 X1) \wedge \\ & (r1_xxreal_0 X0 X2)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((X1 \in \\ & k3_xxreal_1 k2_xxreal_0 X0) \Leftrightarrow (r1_xxreal_0 X1 X0))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ & (r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\neg(\neg X0 \in k1_numbers) \wedge ((X0 \neq k1_xxreal_0) \wedge \\ & (X0 \neq k2_xxreal_0))) \end{aligned} \quad (10)$$

Assume the following.

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

Assume the following.

$$\exists X0.(v1_xxreal_0 X0) \wedge ((v3_xxreal_0 X0) \wedge (\neg v1_xxreal_0 X0)) \quad (12)$$

Assume the following.

$$\exists X0.(v1_xxreal_0 X0) \wedge ((v2_xxreal_0 X0) \wedge (\neg v1_xxreal_0 X0)) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\neg \\ & (k4_xxreal_3 X0 X1 \in k1_numbers) \wedge ((\neg(X0 \in k1_numbers) \wedge (X1 \in k1_numbers)) \wedge \\ & (k4_xxreal_3 X0 X1 \neq k6_numbers)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (k4_xxreal_3 X0 k6_numbers = k6_numbers) \quad (15)$$

Assume the following.

$$v2_xxreal_0 k1_xxreal_0 \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_xboole_0 X0) \wedge (v1_xxreal_0 X0)) \wedge \\ & (v1_xxreal_0 X1)) \Rightarrow ((v1_xboole_0 (k4_xxreal_3 X0 X1)) \wedge (v1_xxreal_0 \\ & (k4_xxreal_3 X0 X1))) \end{aligned} \quad (17)$$

Assume the following.

$$v1_xxreal_0 \ k2_xxreal_0 \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_xxreal_0 \ X0) \wedge (\neg v3_xxreal_0 \ X0)) \wedge \\ & ((v1_xxreal_0 \ X1) \wedge (\neg v3_xxreal_0 \ X1))) \Rightarrow ((v1_xxreal_0 \ (k4_xxreal_3 \\ & \ X0 \ X1)) \wedge (\neg v3_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1))) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1_xxreal_0 \ X0) \wedge (\neg v2_xxreal_0 \ X0)) \wedge \\ & ((v1_xxreal_0 \ X1) \wedge (\neg v3_xxreal_0 \ X1))) \Rightarrow ((v1_xxreal_0 \ (k4_xxreal_3 \\ & \ X0 \ X1)) \wedge (\neg v2_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1))) \end{aligned} \quad (20)$$

Assume the following.

$$v1_xxreal_0 \ k1_xxreal_0 \quad (21)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow (v1_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1)) \quad (22)$$

Assume the following.

$$k1_xxreal_0 = k1_numbers \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1_xxreal_0 \ X0) \Rightarrow (\forall X1. (v1_xxreal_0 \ X1) \Rightarrow ((\\ & ((X0 \in k1_numbers) \wedge (X1 \in k1_numbers)) \Rightarrow ((r1_xxreal_0 \ X0 \ X1) \Leftrightarrow (\exists X2. \\ & (m1_subset_1 \ X2 \ k1_numbers) \wedge (\exists X3. (m1_subset_1 \ X3 \ k1_numbers) \wedge \\ & ((X2 = X0) \wedge ((X3 = X1) \wedge (r1_xxreal_0 \ X2 \ X3)))))) \wedge ((\neg (X0 \in k1_numbers) \wedge \\ & (X1 \in k1_numbers)) \Rightarrow ((r1_xxreal_0 \ X0 \ X1) \Leftrightarrow ((X0 = k2_xxreal_0) \vee (\\ & \ X1 = k1_xxreal_0)))))) \end{aligned} \quad (24)$$

Assume the following.

$$\forall X0. (v1_xxreal_0 \ X0) \Leftrightarrow (X0 \in k1_numbers) \quad (25)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow ((r1_xxreal_0 \ X0 \ X1) \vee (r1_xxreal_0 \ X1 \ X0)) \quad (26)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow (k4_xxreal_3 \ X0 \ X1 = k4_xxreal_3 \ X1 \ X0) \quad (27)$$

Assume the following.

$$\forall X0.((v1_xboole_0 X0) \wedge (v1_xxreal_0 X0)) \Rightarrow ((v1_xxreal_0 X0) \wedge ((\neg v2_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (28)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (29)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (30)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge ((\neg v3_xxreal_0 X0) \wedge (\neg v1_xreal_0 X0))) \Rightarrow ((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \quad (31)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow (\neg(\neg r1_xxreal_0 X1 X0) \wedge ((\neg r1_xxreal_0 X2 \text{ k6_numbers}) \wedge \\ & ((X2 \neq k1_xxreal_0) \wedge (r1_xxreal_0 (k4_xxreal_3 X1 X2) (k4_xxreal_3 \\ & X0 X2))))))) \end{aligned}$$