

t25_extreal2

(TMVrL5vQDkcFMUFdaX1B67ZALPnEYhnHqqY)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_numbers : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k1_extreal1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_extreal1 : \iota \Rightarrow \iota$ be given. Let $k3_supinf_2 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k2_supinf_2 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k2_xxreal_3 : \iota \Rightarrow \iota$ be given. Let $k1_xxreal_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xxreal_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_0 : \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $k4_xxreal_3 : \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow ((r1_xxreal_0 X0 k6_numbers) \Rightarrow (k3_extreal1 X0 = k2_supinf_2 X0)) \quad (3)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee ((v3_xxreal_0 X0) \vee (v2_xxreal_0 X1)))))) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (k2_xxreal_3 (k1_xxreal_3 X0 X1) = k3_xxreal_3 (k2_xxreal_3 X1) X0)) \quad (6)$$

Assume the following.

$$(m2_subset_1 \ np_0 \ k1_numbers \ k5_numbers) \wedge ((m1_subset_1 \ np_0 \ k5_numbers) \wedge (m1_subset_1 \ np_0 \ k1_numbers)) \quad (7)$$

Assume the following.

$$v1_xboole_0 \ np_0 \quad (8)$$

Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \ X0 \ k7_numbers) \wedge (m1_subset_1 \ X1 \ k7_numbers)) \Rightarrow (k3_supinf_2 \ X0 \ X1 = k1_xxreal_3 \ X0 \ X1) \quad (10)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k7_numbers) \Rightarrow (k2_supinf_2 \ X0 = k2_xxreal_3 \ X0) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \ X0 \ k7_numbers) \wedge (m1_subset_1 \ X1 \ k7_numbers)) \Rightarrow (k1_extreal1 \ X0 \ X1 = k4_xxreal_3 \ X0 \ X1) \quad (12)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k7_numbers) \Rightarrow (k3_extreal1 \ (k3_extreal1 \ X0) = k3_extreal1 \ X0) \quad (13)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k7_numbers) \Rightarrow (k2_supinf_2 \ (k2_supinf_2 \ X0) = X0) \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. (((v1_xboole_0 \ X0) \wedge (v1_xxreal_0 \ X0)) \wedge (v1_xxreal_0 \ X1)) \Rightarrow ((v1_xboole_0 \ (k4_xxreal_3 \ X0 \ X1)) \wedge (v1_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1))) \quad (15)$$

Assume the following.

$$\forall X0. \forall X1. (((v1_xxreal_0 \ X0) \wedge (v2_xxreal_0 \ X0)) \wedge ((v1_xxreal_0 \ X1) \wedge (v3_xxreal_0 \ X1))) \Rightarrow ((v1_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1)) \wedge (v3_xxreal_0 \ (k4_xxreal_3 \ X0 \ X1))) \quad (16)$$

Assume the following.

$$\forall X0. (v1_xxreal_0 \ X0) \Rightarrow ((v1_xxreal_0 \ (k2_xxreal_3 \ X0)) \wedge (v1_xxreal_0 \ (k2_xxreal_3 \ X0))) \quad (17)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (\neg v3_xxreal_0 (k3_extreal1 X0)) \quad (18)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((v1_xxreal_0 (k2_xxreal_3 X0)) \wedge (v3_xxreal_0 (k2_xxreal_3 X0))) \quad (19)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0)) \Rightarrow ((v1_xxreal_0 (k2_xxreal_3 X0)) \wedge (\neg v2_xxreal_0 (k2_xxreal_3 X0))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_xxreal_0 X0) \wedge (v3_xxreal_0 X0)) \wedge ((v1_xxreal_0 X1) \wedge (\neg v2_xxreal_0 X1))) \Rightarrow ((v1_xxreal_0 (k1_xxreal_3 X1 X0)) \wedge (v3_xxreal_0 (k1_xxreal_3 X1 X0))) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_xxreal_0 X0) \wedge (v3_xxreal_0 X0)) \wedge ((v1_xxreal_0 X1) \wedge (\neg v2_xxreal_0 X1))) \Rightarrow ((v1_xxreal_0 (k1_xxreal_3 X0 X1)) \wedge (v3_xxreal_0 (k1_xxreal_3 X0 X1))) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \wedge ((v1_xxreal_0 X1) \wedge (\neg v3_xxreal_0 X1))) \Rightarrow ((v1_xxreal_0 (k1_xxreal_3 X1 X0)) \wedge (v2_xxreal_0 (k1_xxreal_3 X1 X0))) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.(((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \wedge ((v1_xxreal_0 X1) \wedge (\neg v3_xxreal_0 X1))) \Rightarrow ((v1_xxreal_0 (k1_xxreal_3 X0 X1)) \wedge (v2_xxreal_0 (k1_xxreal_3 X0 X1))) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k7_numbers) \wedge (m1_subset_1 X1 k7_numbers)) \Rightarrow (m1_subset_1 (k3_supinf_2 X0 X1) k7_numbers) \quad (25)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (m1_subset_1 (k3_extreal1 X0) k7_numbers) \quad (26)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (m1_subset_1 (k2_supinf_2 X0) k7_numbers) \quad (27)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k7_numbers) \wedge (m1_subset_1 X1 k7_numbers)) \Rightarrow (m1_subset_1 (k1_extreal1 X0 X1) k7_numbers) \quad (28)$$

Assume the following.

$$\forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (k3_xxreal_3 X0 X1 = k1_xxreal_3 X0 (k2_xxreal_3 X1))) \quad (29)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (((r1_xxreal_0 k6_numbers X0) \Rightarrow (k3_extreal1 X0 = X0)) \wedge ((\neg r1_xxreal_0 k6_numbers X0) \Rightarrow (k3_extreal1 X0 = k2_supinf_2 X0))) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow ((r1_xxreal_0 X0 X1) \vee (r1_xxreal_0 X1 X0)) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k7_numbers) \wedge (m1_subset_1 X1 k7_numbers)) \Rightarrow (k3_supinf_2 X0 X1 = k3_supinf_2 X1 X0) \quad (32)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k7_numbers) \wedge (m1_subset_1 X1 k7_numbers)) \Rightarrow (k1_extreal1 X0 X1 = k1_extreal1 X1 X0) \quad (33)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v3_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v2_xxreal_0 X0))) \quad (34)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (35)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (36)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge ((\neg v3_xxreal_0 X0) \wedge (\neg v1_xreal_0 X0))) \Rightarrow ((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \quad (37)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (v1_xreal_0 X0) \quad (38)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (39)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k7_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\ & X1 k7_numbers) \Rightarrow ((r1_xxreal_0 k6_numbers (k1_extreal1 X0 X1)) \Rightarrow \\ & (k3_extreal1 (k3_supinf_2 X0 X1) = k3_supinf_2 (k3_extreal1 X0) \\ & (k3_extreal1 X1)))) \end{aligned}$$