

t9_treal_1

(TMH17JzK65WwGnKQnDWhb2VondV1i4zM9pV)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_topmetr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $np_1 : \iota$ be given. Let $k3_treal_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_treal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_treal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $np_0 : \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $k3_topmetr : \iota$ be given. Let $v3_topmetr : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $m1_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $v1_membered : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k6_xcmplx_0 X0 \ k6_numbers = X0) \quad (2)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k3_xcmplx_0 \ np_1 \ X0 = X0) \quad (3)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k3_xcmplx_0 \ X0 \ k6_numbers = k6_numbers) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (((r1_xxreal_0 X0 X1) \wedge (v2_xxreal_0 X0)) \Rightarrow (v2_xxreal_0 X1))) \quad (5)$$

Assume the following.

$$m1_subset_1 k1_xboole_0 k4_ordinal1 \quad (6)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 k6_numbers = X0) \quad (7)$$

Assume the following.

$$((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \quad (8)$$

Assume the following.

$$(m2_subset_1 np_0 k1_numbers k5_numbers) \wedge ((m1_subset_1 np_0 k5_numbers) \wedge (m1_subset_1 np_0 k1_numbers)) \quad (9)$$

Assume the following.

$$v1_xboole_0 np_0 \quad (10)$$

Assume the following.

$$k4_xcmplx_0 np_0 = np_0 \quad (11)$$

Assume the following.

$$k6_xcmplx_0 np_1 np_1 = np_0 \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k9_real_1 X0 X1 = k6_xcmplx_0 X0 X1) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k8_real_1 X0 X1 = k3_xcmplx_0 X0 X1) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k7_real_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (15)$$

Assume the following.

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

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 (k4_topmetr X0 X1))) \Rightarrow ((r1_xxreal_0 \\ X0 X1) \Rightarrow (m1_subset_1 X2 k1_numbers)))) \end{aligned} \quad (18)$$

Assume the following.

$$(v2_pre_topc k3_topmetr) \wedge (v3_topmetr k3_topmetr) \quad (19)$$

Assume the following.

$$\forall X0.((v3_topmetr X0) \wedge (l1_struct_0 X0)) \Rightarrow (v3_membered \\ (u1_struct_0 X0)) \quad (20)$$

Assume the following.

$$\forall X0.((\neg v3_xxreal_0 X0) \wedge (v1_xreal_0 X0)) \Rightarrow ((v1_xcmplx_0 \\ (k4_xcmplx_0 X0)) \wedge (\neg v2_xxreal_0 (k4_xcmplx_0 X0))) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.(((v2_xxreal_0 X0) \wedge (v1_xreal_0 X0)) \wedge (\\ (\neg v3_xxreal_0 X1) \wedge (v1_xreal_0 X1))) \Rightarrow (v2_xxreal_0 (k2_xcmplx_0 \\ X1 X0)) \quad (22)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_pre_topc X1 X0) \Rightarrow \\ (l1_pre_topc X1)) \quad (23)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (l1_struct_0 X0) \quad (24)$$

Assume the following.

$$m1_subset_1 k5_numbers (k1_zfmisc_1 k1_numbers) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow ((\neg \\ v2_struct_0 (k4_topmetr X0 X1)) \wedge ((v1_pre_topc (k4_topmetr X0 \\ X1)) \wedge (m1_pre_topc (k4_topmetr X0 X1) k3_topmetr))) \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_xreal_0 X0)\wedge \\ & ((v1_xreal_0 X1)\wedge((m1_subset_1 X2 (u1_struct_0 (k4_topmetr X0 \\ & X1)))\wedge(m1_subset_1 X3 (u1_struct_0 (k4_topmetr X0 X1))))))\Rightarrow(\\ & (v1_funct_1 (k3_treal_1 X0 X1 X2 X3))\wedge((v1_funct_2 (k3_treal_1 \\ & X0 X1 X2 X3) (u1_struct_0 (k4_topmetr k6_numbers np_1)) (u1_struct_0 \\ & (k4_topmetr X0 X1)))\wedge(m1_subset_1 (k3_treal_1 X0 X1 X2 X3) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 (k4_topmetr k6_numbers np_1)) (u1_struct_0 \\ & (k4_topmetr X0 X1))))))) \end{aligned} \quad (27)$$

Assume the following.

$$(v2_pre_topc k3_topmetr)\wedge(l1_pre_topc k3_topmetr) \quad (28)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k2_treal_1 X0 X1) (u1_struct_0 (k4_topmetr X0 X1))) \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k1_treal_1 X0 X1) (u1_struct_0 (k4_topmetr X0 X1))) \quad (30)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow((r1_xxreal_0 \\ & X0 X1)\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 (k4_topmetr X0 \\ & X1)))\Rightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 (k4_topmetr X0 \\ & X1)))\Rightarrow(\forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 X4 (u1_struct_0 \\ & (k4_topmetr k6_numbers np_1)) (u1_struct_0 (k4_topmetr X0 X1)))\wedge \\ & (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 (k4_topmetr \\ & k6_numbers np_1)) (u1_struct_0 (k4_topmetr X0 X1))))))\Rightarrow((X4 = \\ & k3_treal_1 X0 X1 X2 X3)\Leftrightarrow(\forall X5.(m1_subset_1 X5 (u1_struct_0 \\ & (k4_topmetr k6_numbers np_1)))\Rightarrow(k3_funct_2 (u1_struct_0 (k4_topmetr \\ & k6_numbers np_1)) (u1_struct_0 (k4_topmetr X0 X1)) X4 X5 = k7_real_1 \\ & (k8_real_1 (k9_real_1 np_1 X5) X2) (k3_xcmplx_0 X5 X3)))))))))) \end{aligned} \quad (31)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow((r1_xxreal_0 X0 X1)\Rightarrow(k2_treal_1 X0 X1 = X1))) \quad (32)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow((r1_xxreal_0 X0 X1)\Rightarrow(k1_treal_1 X0 X1 = X0))) \quad (33)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0)\wedge(v1_xxreal_0 X1))\Rightarrow((r1_xxreal_0 X0 X1)\vee(r1_xxreal_0 X1 X0)) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xxreal_0 X1))\Rightarrow(k7_real_1 X0 X1 = k7_real_1 X1 X0) \quad (35)$$

Assume the following.

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

Assume the following.

$$\forall X0.(m1_subset_1 X0 (k1_zfmisc_1 k1_numbers))\Rightarrow(v3_membered X0) \quad (37)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0)\wedge(v3_xxreal_0 X0))\Rightarrow((\neg v1_xboole_0 X0)\wedge((v1_xxreal_0 X0)\wedge(\neg v2_xxreal_0 X0))) \quad (38)$$

Assume the following.

$$\forall X0.(v3_membered X0)\Rightarrow(v1_membered X0) \quad (39)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xxreal_0 X0) \quad (40)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xcmplx_0 X0) \quad (41)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(v1_xreal_0 X0) \quad (42)$$

Assume the following.

$$\forall X0.((v3_topmetr X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1.(m1_pre_topc X1 X0)\Rightarrow(v3_topmetr X1)) \quad (43)$$

Assume the following.

$$\forall X0.(v3_membered X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow (v1_xreal_0 X1)) \quad (44)$$

Assume the following.

$$\forall X0.(v1_membered X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow (v1_xcmplx_0 X1)) \quad (45)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 \\ & X0 X1) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k4_topmetr X0 \\ & X1))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k4_topmetr X0 \\ & X1))) \Rightarrow ((k3_funct_2 (u1_struct_0 (k4_topmetr k6_numbers np_1)) \\ & (u1_struct_0 (k4_topmetr X0 X1)) (k3_treal_1 X0 X1 X2 X3) (k1_treal_1 \\ & k6_numbers np_1) = X2) \wedge (k3_funct_2 (u1_struct_0 (k4_topmetr \\ & k6_numbers np_1)) (u1_struct_0 (k4_topmetr X0 X1)) (k3_treal_1 \\ & X0 X1 X2 X3) (k2_treal_1 k6_numbers np_1) = X3)))))) \end{aligned}$$