

t12_comp trig
(TMa2vVg1FBXB29V42B34BGpPv9qS5pWUZ9i)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k32_sin_cos : \iota$ be given. Let $np_2 : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_sin_cos : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k16_sin_cos : \iota$ be given. Let $np_1 : \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k4_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k1_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ 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 $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \neg(v1_xboole_0 X0) \wedge ((X0 \neq X1) \wedge (v1_xboole_0 X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & (k1_seq_1 k19_sin_cos (k10_real_1 k32_sin_cos np_2) = k6_numbers) \wedge \\ & ((k1_seq_1 k16_sin_cos (k10_real_1 k32_sin_cos np_2) = np_1) \wedge \\ & ((k1_seq_1 k19_sin_cos k32_sin_cos = k1_real_1 np_1) \wedge ((k1_seq_1 \\ & k16_sin_cos k32_sin_cos = k6_numbers) \wedge ((k1_seq_1 k19_sin_cos \\ & (k7_real_1 k32_sin_cos (k10_real_1 k32_sin_cos np_2)) = k6_numbers) \wedge \\ & ((k1_seq_1 k16_sin_cos (k7_real_1 k32_sin_cos (k10_real_1 k32_sin_cos \\ & np_2)) = k1_real_1 np_1) \wedge ((k1_seq_1 k19_sin_cos (k8_real_1 \\ & np_2 k32_sin_cos) = np_1) \wedge (k1_seq_1 k16_sin_cos (k8_real_1 \\ & np_2 k32_sin_cos) = k6_numbers)))))) \end{aligned} \quad (2)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow ((X0 \in k4_xxreal_1 X1 X2) \Leftrightarrow ((\neg r1_xxreal_0 X0 X1) \wedge \\ & (\neg r1_xxreal_0 X2 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow ((k1_seq_1 k19_sin_cos k6_numbers = \\ & np_1) \wedge ((k1_seq_1 k16_sin_cos k6_numbers = k6_numbers) \wedge ((k1_seq_1 \\ & k19_sin_cos (k4_xcmplx_0 X0) = k1_seq_1 k19_sin_cos X0) \wedge (k1_seq_1 \\ & k16_sin_cos (k4_xcmplx_0 X0) = k1_real_1 (k1_seq_1 k16_sin_cos \\ & X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xxreal_0 X2) \Rightarrow ((X0 \in k1_xxreal_1 X1 X2) \Leftrightarrow ((r1_xxreal_0 X1 X0) \wedge \\ & (r1_xxreal_0 X0 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ & (r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\neg (X0 \in k2_rcomp_1 (k1_real_1 (k10_real_1 \\ & k32_sin_cos np_2)) (k10_real_1 k32_sin_cos np_2)) \wedge (r1_xxreal_0 \\ & (k1_seq_1 k19_sin_cos X0) k6_numbers)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers)) \end{aligned} \quad (10)$$

Assume the following.

$$v1_xboole_0 np_0 \quad (11)$$

Assume the following.

$$r1_xxreal_0 np_0 np_0 \quad (12)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(k2_rcomp_1 X0 X1 = k4_xreal_1 X0 X1) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 X0)))\Rightarrow(k1_seq_1 X0 X1 = k1_funct_1 X0 X1) \quad (15)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(k1_real_1 X0 = k4_xcmplx_0 X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(k1_rcomp_1 X0 X1 = k1_xreal_1 X0 X1) \quad (17)$$

Assume the following.

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

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0)\Rightarrow(k4_xcmplx_0 (k4_xcmplx_0 X0) = X0) \quad (19)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(k1_real_1 (k1_real_1 X0) = X0) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X0)\wedge((v1_funct_1 X0)\wedge(v3_valued_0 X0)))\Rightarrow(v1_xreal_0 (k1_funct_1 X0 X1)) \quad (21)$$

Assume the following.

$$v3_membered k1_numbers \quad (22)$$

Assume the following.

$$m1_subset_1 k32_sin_cos k1_numbers \quad (23)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(m1_subset_1 (k1_real_1 X0) k1_numbers) \quad (24)$$

Assume the following.

$$(v1_funct_1 \ k19_sin_cos) \wedge ((v1_funct_2 \ k19_sin_cos \ k1_numbers \ k1_numbers) \wedge (m1_subset_1 \ k19_sin_cos \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ k1_numbers \ k1_numbers)))) \quad (25)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \ X0 \ k1_numbers) \wedge (v1_xreal_0 \ X1)) \Rightarrow (m1_subset_1 \ (k10_real_1 \ X0 \ X1) \ k1_numbers) \quad (26)$$

Assume the following.

$$\forall X0. (v1_xreal_0 \ X0) \Leftrightarrow (X0 \in k1_numbers) \quad (27)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \ X0) \wedge (v1_xxreal_0 \ X1)) \Rightarrow ((r1_xxreal_0 \ X0 \ X1) \vee (r1_xxreal_0 \ X1 \ X0)) \quad (28)$$

Assume the following.

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

Assume the following.

$$\forall X0. (v1_xreal_0 \ X0) \Rightarrow (v1_xcmplx_0 \ X0) \quad (30)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (v1_xreal_0 \ X0) \quad (31)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X1))) \Rightarrow (v1_relat_1 \ X2) \quad (32)$$

Assume the following.

$$\forall X0. \forall X1. (v3_membered \ X1) \Rightarrow (\forall X2. (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ X0 \ X1))) \Rightarrow (v3_valued_0 \ X2)) \quad (33)$$

Assume the following.

$$\forall X0. (v3_membered \ X0) \Rightarrow (\forall X1. (m1_subset_1 \ X1 \ X0) \Rightarrow (v1_xreal_0 \ X1)) \quad (34)$$

Theorem 1

$$\forall X0. (v1_xreal_0 \ X0) \Rightarrow ((X0 \in k1_rcomp_1 \ (k1_real_1 \ (k10_real_1 \ k32_sin_cos \ np_2)) \ (k10_real_1 \ k32_sin_cos \ np_2)) \Rightarrow (r1_xxreal_0 \ k6_numbers \ (k1_seq_1 \ k19_sin_cos \ X0)))$$