

t28_sin_cos6

(TMM5nJMKy9QPUjE41uFPBQjcKdsJBUwqUj5)

October 27, 2020

Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k32_sin_cos : \iota$ be given. Let $k17_sin_cos : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_sin_cos : \iota$ be given. Let $k21_sin_cos : \iota \Rightarrow \iota$ be given. Let $k18_sin_cos : \iota \Rightarrow \iota$ be given. Let $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_sin_cos : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $np_3 : \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k4_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_square_1 : \iota \Rightarrow \iota$ be given. Let $k20_sin_cos : \iota \Rightarrow \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_0 : \iota$ be given. Let $k7_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k31_sin_cos : \iota$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $v2_membered : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\neg(X0 \in k2_rcomp_1 k32_sin_cos (k8_real_1 np_2 k32_sin_cos)) \wedge (r1_xxreal_0 k6_numbers (k1_seq_1 k16_sin_cos X0))) \quad (1)$$

Assume the following.

$$\begin{aligned} & (k21_sin_cos (k10_real_1 k32_sin_cos np_2) = k6_numbers) \wedge ((\\ & k18_sin_cos (k10_real_1 k32_sin_cos np_2) = np_1) \wedge ((k21_sin_cos \\ & k32_sin_cos = k1_real_1 np_1) \wedge ((k18_sin_cos k32_sin_cos = k6_numbers) \wedge \\ & ((k21_sin_cos (k7_real_1 k32_sin_cos (k10_real_1 k32_sin_cos \\ & np_2)) = k6_numbers) \wedge ((k18_sin_cos (k7_real_1 k32_sin_cos (\\ & k10_real_1 k32_sin_cos np_2)) = k1_real_1 np_1) \wedge ((k21_sin_cos \\ & (k8_real_1 np_2 k32_sin_cos) = np_1) \wedge (k18_sin_cos (k8_real_1 \\ & np_2 k32_sin_cos) = k6_numbers)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned}
& (k1_seq_1 k19_sin_cos (k10_real_1 k32_sin_cos np_2) = k6_numbers) \wedge \\
& ((k1_seq_1 k16_sin_cos (k10_real_1 k32_sin_cos np_2) = np_1) \wedge \\
& ((k1_seq_1 k19_sin_cos k32_sin_cos = k1_real_1 np_1) \wedge ((k1_seq_1 \\
& k16_sin_cos k32_sin_cos = k6_numbers) \wedge ((k1_seq_1 k19_sin_cos \\
& (k7_real_1 k32_sin_cos (k10_real_1 k32_sin_cos np_2)) = k6_numbers) \wedge \\
& ((k1_seq_1 k16_sin_cos (k7_real_1 k32_sin_cos (k10_real_1 k32_sin_cos \\
& np_2)) = k1_real_1 np_1) \wedge ((k1_seq_1 k19_sin_cos (k8_real_1 \\
& np_2 k32_sin_cos) = np_1) \wedge (k1_seq_1 k16_sin_cos (k8_real_1 \\
& np_2 k32_sin_cos) = k6_numbers))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \tag{4}$$

Assume the following.

$$\begin{aligned}
& (\neg r1_xxreal_0 (k10_real_1 k32_sin_cos np_2) k6_numbers) \wedge ((\\
& \neg r1_xxreal_0 k32_sin_cos (k10_real_1 k32_sin_cos np_2)) \wedge ((\\
& \neg r1_xxreal_0 k32_sin_cos k6_numbers) \wedge ((\neg r1_xxreal_0 (k10_real_1 \\
& k32_sin_cos np_2) (k1_real_1 (k10_real_1 k32_sin_cos np_2))) \wedge \\
& ((\neg r1_xxreal_0 (k8_real_1 np_2 k32_sin_cos) k32_sin_cos) \wedge (\\
& (\neg r1_xxreal_0 (k8_real_1 (k10_real_1 np_3 np_2) k32_sin_cos) \\
& (k10_real_1 k32_sin_cos np_2)) \wedge ((\neg r1_xxreal_0 k6_numbers (\\
& k1_real_1 (k10_real_1 k32_sin_cos np_2))) \wedge ((\neg r1_xxreal_0 (\\
& k8_real_1 np_2 k32_sin_cos) k6_numbers) \wedge ((\neg r1_xxreal_0 (k8_real_1 \\
& (k10_real_1 np_3 np_2) k32_sin_cos) k32_sin_cos) \wedge ((\neg r1_xxreal_0 \\
& (k8_real_1 np_2 k32_sin_cos) (k8_real_1 (k10_real_1 np_3 np_2) \\
& k32_sin_cos)) \wedge (\neg r1_xxreal_0 (k8_real_1 (k10_real_1 np_3 np_2) \\
& k32_sin_cos) k6_numbers)))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow (\forall X2. \\
& (v1_xxreal_0 X2) \Rightarrow ((X0 \in k4_xxreal_1 X1 X2) \Leftrightarrow ((\neg r1_xxreal_0 X0 X1) \wedge \\
& (\neg r1_xxreal_0 X2 X0))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (r1_xreal_0 (k17_sin_cos X0) np_1) \tag{7}$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k3_xcmplx_0 np_1 X0 = X0) \tag{8}$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow ((k2_xcmplx_0 (k3_square_1 (k20_sin_cos \\ X0)) (k3_square_1 (k17_sin_cos X0)) = np_1) \wedge (k2_xcmplx_0 (k3_xcmplx_0 \\ (k20_sin_cos X0) (k20_sin_cos X0)) (k3_xcmplx_0 (k17_sin_cos \\ X0) (k17_sin_cos X0)) = np_1)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((\\ (r1_xreal_0 X0 X1) \wedge (r1_xreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 \text{ k6_numbers} = X0) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\neg(r1_xreal_0 \text{ k6_numbers} X0) \wedge ((\\ \neg r1_xreal_0 (k8_real_1 np_2 \text{ k32_sin_cos}) X0) \wedge ((k20_sin_cos \\ X0 = \text{ k6_numbers}) \wedge ((X0 \neq k10_real_1 \text{ k32_sin_cos} np_2) \wedge (X0 \neq k8_real_1 \\ (k10_real_1 np_3 np_2) \text{ k32_sin_cos})))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v1_xcmplx_0 X0) \wedge ((v1_xcmplx_0 \\ X1) \wedge (v1_xcmplx_0 X2))) \Rightarrow (k2_xcmplx_0 (k2_xcmplx_0 X0 X1) X2 = k2_xcmplx_0 \\ X0 (k2_xcmplx_0 X1 X2)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} ((v2_xreal_0 np_3) \wedge (m2_subset_1 np_3 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_3 \text{ k5_numbers}) \wedge (m1_subset_1 np_3 \text{ k1_numbers})) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} ((v2_xreal_0 np_2) \wedge (m2_subset_1 np_2 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_2 \text{ k5_numbers}) \wedge (m1_subset_1 np_2 \text{ k1_numbers})) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} ((v2_xreal_0 np_1) \wedge (m2_subset_1 np_1 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_1 \text{ k5_numbers}) \wedge (m1_subset_1 np_1 \text{ k1_numbers})) \end{aligned} \quad (16)$$

Assume the following.

$$v1_xboole_0 np_0 \quad (17)$$

Assume the following.

$$k3_xcmplx_0 (k7_xcmplx_0 np_1 np_2) np_3 = k7_xcmplx_0 np_3 np_2 \quad (18)$$

Assume the following.

$$k3_xcmplx_0 \text{ } np_1 \text{ } np_1 = np_1 \quad (19)$$

Assume the following.

$$k2_xcmplx_0 (k4_xcmplx_0 \text{ } np_1) \text{ } np_1 = np_0 \quad (20)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \text{ } X0 \text{ } k1_numbers) \wedge (v1_xreal_0 \text{ } X1)) \Rightarrow (k8_real_1 \text{ } X0 \text{ } X1 = k3_xcmplx_0 \text{ } X0 \text{ } X1) \quad (21)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (22)$$

Assume the following.

$$k32_sin_cos = k31_sin_cos \quad (23)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_xxreal_0 \text{ } X0) \wedge (v1_xxreal_0 \text{ } X1)) \Rightarrow (k2_rcomp_1 \text{ } X0 \text{ } X1 = k4_xxreal_1 \text{ } X0 \text{ } X1) \quad (24)$$

Assume the following.

$$\forall X0. (m1_subset_1 \text{ } X0 \text{ } k1_numbers) \Rightarrow (k21_sin_cos \text{ } X0 = k20_sin_cos \text{ } X0) \quad (25)$$

Assume the following.

$$\forall X0. (m1_subset_1 \text{ } X0 \text{ } k1_numbers) \Rightarrow (k1_real_1 \text{ } X0 = k4_xcmplx_0 \text{ } X0) \quad (26)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \text{ } X0 \text{ } k1_numbers) \wedge (v1_xreal_0 \text{ } X1)) \Rightarrow (k10_real_1 \text{ } X0 \text{ } X1 = k7_xcmplx_0 \text{ } X0 \text{ } X1) \quad (27)$$

Assume the following.

$$\exists X0. (v1_xboole_0 \text{ } X0) \wedge ((v1_xcmplx_0 \text{ } X0) \wedge ((v1_xxreal_0 \text{ } X0) \wedge (v1_xreal_0 \text{ } X0))) \quad (28)$$

Assume the following.

$$k7_real_1 (k8_real_1 (k10_real_1 \text{ } np_3 \text{ } np_2) \text{ } k32_sin_cos) (k10_real_1 \text{ } k32_sin_cos \text{ } np_2) = k8_real_1 \text{ } np_2 \text{ } k32_sin_cos \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k7_xcmplx_0 X0 X1)) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1_xboole_0 X0)\wedge(v1_xcmplx_0 X0))\wedge((\neg v1_xboole_0 X1)\wedge(v1_xcmplx_0 X1)))\Rightarrow(\neg v1_xboole_0 (k3_xcmplx_0 X0 X1)) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0)\wedge(v1_xcmplx_0 X1))\Rightarrow(v1_xcmplx_0 (k3_xcmplx_0 X0 X1)) \quad (32)$$

Assume the following.

$$v3_membered\ k1_numbers \quad (33)$$

Assume the following.

$$(v1_xreal_0\ k31_sin_cos)\wedge(\neg v3_xxreal_0\ k31_sin_cos) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0\ k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k8_real_1 X0 X1)\ k1_numbers) \quad (35)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0\ k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k7_real_1 X0 X1)\ k1_numbers) \quad (36)$$

Assume the following.

$$m1_subset_1\ k32_sin_cos\ k1_numbers \quad (37)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0\ k1_numbers)\Rightarrow(m1_subset_1 (k21_sin_cos X0)\ k1_numbers) \quad (38)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0\ k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k10_real_1 X0 X1)\ k1_numbers) \quad (39)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0)\Rightarrow(k3_square_1 X0 = k3_xcmplx_0 X0 X0) \quad (40)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (k17_sin_cos X0 = k1_seq_1 k16_sin_cos X0) \quad (41)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0) \wedge (v1_xcmplx_0 X1)) \Rightarrow (k2_xcmplx_0 X0 X1 = k2_xcmplx_0 X1 X0) \quad (42)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (43)$$

Assume the following.

$$\forall X0.(v3_membered X0) \Rightarrow (v2_membered X0) \quad (44)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xcmplx_0 X0) \quad (45)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (46)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xcmplx_0 X0) \quad (47)$$

Assume the following.

$$\forall X0.(v3_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_xreal_0 X1)) \quad (48)$$

Assume the following.

$$\forall X0.(v2_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_xxreal_0 X1)) \quad (49)$$

Theorem 1

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (((r1_xxreal_0 k6_numbers X0) \wedge ((r1_xxreal_0 X0 (k8_real_1 np_2 k32_sin_cos)) \wedge (k17_sin_cos X0 = np_1))) \Rightarrow (X0 = k10_real_1 k32_sin_cos np_2))$$