

t27_sin_cos6

(TMPMtKW8dewXxy2dee6E4AGf2H9emL1kZPt)

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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 $k6_numbers : \iota$ 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 $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_3 : \iota$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $k21_sin_cos : \iota \Rightarrow \iota$ be given. Let $k18_sin_cos : \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_sin_cos : \iota$ be given. Let $k16_sin_cos : \iota$ 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 $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k1_comp trig : \iota \Rightarrow \iota$ be given. Let $k7_complex1 : \iota$ 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 $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k1_absvalue : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ 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 $v2_membered : \iota \Rightarrow o$ 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.

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

Assume the following.

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

Assume the following.

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

Assume the following.

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

Assume the following.

$$\forall X0.(v1_xcmplx_0 \ X0) \Rightarrow (k3_xcmplx_0 \ np_1 \ X0 = X0) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 \ X0 \ k1_numbers) \Rightarrow ((\neg r1_xxreal_0 \ k6_numbers \\
& \quad X0) \Rightarrow (k1_comptrig \ (k3_xcmplx_0 \ X0 \ k7_complex1) = k8_real_1 \ (k10_real_1 \\
& \quad \quad np_3 \ np_2) \ k32_sin_cos))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 \ X0) \Rightarrow (k3_xcmplx_0 \ X0 \ k6_numbers = k6_numbers) \tag{8}$$

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.

$$\begin{aligned} \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ (r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \quad (10)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\neg(r1_xxreal_0 \text{ k6_numbers} X0) \wedge ((\\ \neg r1_xxreal_0 (k8_real_1 np_2 \text{ k32_sin_cos}) X0) \wedge ((k20_sin_cos \\ X0 = \text{ k6_numbers}) \wedge ((X0 \neq k10_real_1 \text{ k32_sin_cos} np_2) \wedge (X0 \neq k8_real_1 \\ (k10_real_1 np_3 np_2) \text{ k32_sin_cos})))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\neg(k1_absvalue X0 = k1_real_1 np_1) \wedge \\ (r1_xxreal_0 \text{ k6_numbers} X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v1_xcmplx_0 X0) \wedge ((v1_xcmplx_0 \\ X1) \wedge (v1_xcmplx_0 X2))) \Rightarrow (k2_xcmplx_0 (k2_xcmplx_0 X0 X1) X2 = k2_xcmplx_0 \\ X0 (k2_xcmplx_0 X1 X2)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} ((v2_xxreal_0 np_3) \wedge (m2_subset_1 np_3 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_3 \text{ k5_numbers}) \wedge (m1_subset_1 np_3 \text{ k1_numbers})) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_2 \text{ k5_numbers}) \wedge (m1_subset_1 np_2 \text{ k1_numbers})) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 \text{ k1_numbers} \text{ k5_numbers})) \wedge \\ ((m1_subset_1 np_1 \text{ k5_numbers}) \wedge (m1_subset_1 np_1 \text{ k1_numbers})) \end{aligned} \quad (17)$$

Assume the following.

$$(m2_subset_1 \ np_0 \ k1_numbers \ k5_numbers) \wedge ((m1_subset_1 \ np_0 \ k5_numbers) \wedge (m1_subset_1 \ np_0 \ k1_numbers)) \quad (18)$$

Assume the following.

$$v1_xboole_0 \ np_0 \quad (19)$$

Assume the following.

$$k3_xcmplx_0 \ (k7_xcmplx_0 \ np_1 \ np_2) \ np_3 = k7_xcmplx_0 \ np_3 \ np_2 \quad (20)$$

Assume the following.

$$k3_xcmplx_0 \ np_1 \ np_1 = np_1 \quad (21)$$

Assume the following.

$$k2_xcmplx_0 \ (k4_xcmplx_0 \ np_1) \ np_1 = np_0 \quad (22)$$

Assume the following.

$$r1_xxreal_0 \ (k4_xcmplx_0 \ np_1) \ np_0 \quad (23)$$

Assume the following.

$$r1_xxreal_0 \ np_0 \ np_0 \quad (24)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_subset_1 \ X0 \ k1_numbers) \wedge (v1_xreal_0 \ X1)) \Rightarrow (k8_real_1 \ X0 \ X1 = k3_xcmplx_0 \ X0 \ X1) \quad (25)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (26)$$

Assume the following.

$$k32_sin_cos = k31_sin_cos \quad (27)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (k21_sin_cos \ X0 = k20_sin_cos \ X0) \quad (28)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (k1_real_1 \ X0 = k4_xcmplx_0 \ X0) \quad (29)$$

Assume the following.

$$\forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (k18_sin_cos \ X0 = k17_sin_cos \ X0) \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k10_real_1 X0 X1 = k7_xcmplx_0 X0 X1) \quad (31)$$

Assume the following.

$$\exists X0.(v1_xboole_0 X0)\wedge((v1_xcmplx_0 X0)\wedge((v1_xreal_0 X0)\wedge(v1_xreal_0 X0))) \quad (32)$$

Assume the following.

$$k7_real_1 (k8_real_1 (k10_real_1 np_3 np_2) k32_sin_cos) (k10_real_1 k32_sin_cos np_2) = k8_real_1 np_2 k32_sin_cos \quad (33)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k7_xcmplx_0 X0 X1)) \quad (34)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1_xboole_0 X0)\wedge(v1_xcmplx_0 X0))\wedge((\neg v1_xboole_0 X1)\wedge(v1_xcmplx_0 X1)))\Rightarrow(\neg v1_xboole_0 (k3_xcmplx_0 X0 X1)) \quad (35)$$

Assume the following.

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

Assume the following.

$$v3_membered k1_numbers \quad (37)$$

Assume the following.

$$(v1_xreal_0 k31_sin_cos)\wedge(\neg v3_xreal_0 k31_sin_cos) \quad (38)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k8_real_1 X0 X1) k1_numbers) \quad (39)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k7_real_1 X0 X1) k1_numbers) \quad (40)$$

Assume the following.

$$m1_subset_1 k32_sin_cos k1_numbers \quad (41)$$

Assume the following.

$$v1_xreal_0 \ k31_sin_cos \quad (42)$$

Assume the following.

$$\forall X0.(m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (m1_subset_1 \ (k21_sin_cos \ X0) \ k1_numbers) \quad (43)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 \ X0 \ k1_numbers) \wedge (v1_xreal_0 \ X1)) \Rightarrow (m1_subset_1 \ (k10_real_1 \ X0 \ X1) \ k1_numbers) \quad (44)$$

Assume the following.

$$\forall X0.(v1_xreal_0 \ X0) \Rightarrow (((\neg r1_xxreal_0 \ X0 \ k6_numbers) \Rightarrow (k1_absvalue \ X0 = np_1)) \wedge (((\neg r1_xxreal_0 \ k6_numbers \ X0) \Rightarrow (k1_absvalue \ X0 = k1_real_1 \ np_1)) \wedge (((r1_xxreal_0 \ X0 \ k6_numbers) \wedge (r1_xxreal_0 \ k6_numbers \ X0)) \Rightarrow (k1_absvalue \ X0 = k6_numbers)))) \quad (45)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 \ X0) \Rightarrow (k3_square_1 \ X0 = k3_xcmplx_0 \ X0 \ X0) \quad (46)$$

Assume the following.

$$\forall X0.(v1_xreal_0 \ X0) \Rightarrow (k17_sin_cos \ X0 = k1_seq_1 \ k16_sin_cos \ X0) \quad (47)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 \ X0) \wedge (v1_xcmplx_0 \ X1)) \Rightarrow (k2_xcmplx_0 \ X0 \ X1 = k2_xcmplx_0 \ X1 \ X0) \quad (48)$$

Assume the following.

$$\forall X0.(v1_xreal_0 \ X0) \Rightarrow (v1_xxreal_0 \ X0) \quad (49)$$

Assume the following.

$$\forall X0.(v3_membered \ X0) \Rightarrow (v2_membered \ X0) \quad (50)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 \ X0) \wedge (v2_xxreal_0 \ X0)) \Rightarrow ((\neg v1_xboole_0 \ X0) \wedge ((v1_xxreal_0 \ X0) \wedge (\neg v3_xxreal_0 \ X0))) \quad (51)$$

Assume the following.

$$\forall X0.(v1_xreal_0 \ X0) \Rightarrow (v1_xcmplx_0 \ X0) \quad (52)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (53)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xcmplx_0 X0) \quad (54)$$

Assume the following.

$$\forall X0.(v3_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_xreal_0 X1)) \quad (55)$$

Assume the following.

$$\forall X0.(v2_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_xxreal_0 X1)) \quad (56)$$

Theorem 1

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (((r1_xxreal_0 k6_numbers X0) \wedge ((r1_xxreal_0 X0 (k8_real_1 np_2 k32_sin_cos)) \wedge (k17_sin_cos X0 = k1_real_1 np_1))) \Rightarrow (X0 = k8_real_1 (k10_real_1 np_3 np_2) k32_sin_cos))$$