

t79_sin_cos (TMK-
TWfWwdEr1gbE88AnxexAcoKnxU4vv3eZ)

October 27, 2020

Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k18_sin_cos : \iota \Rightarrow \iota$ be given. Let $k3_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k21_sin_cos : \iota \Rightarrow \iota$ be given. Let $k20_sin_cos : \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_sin_cos : \iota$ be given. Let $k19_sin_cos : \iota$ be given. Let $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k31_sin_cos : \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xreal_0 X0) \Rightarrow ((k1_seq_1 k16_sin_cos (k3_real_1 \\
& X0 (k8_real_1 np_2 k32_sin_cos)) = k1_seq_1 k16_sin_cos X0) \wedge (\\
& (k1_seq_1 k19_sin_cos (k3_real_1 X0 (k8_real_1 np_2 k32_sin_cos)) = \\
& k1_seq_1 k19_sin_cos X0) \wedge ((k1_seq_1 k16_sin_cos (k9_real_1 (\\
& k10_real_1 k32_sin_cos np_2) X0) = k1_seq_1 k19_sin_cos X0) \wedge (\\
& (k1_seq_1 k19_sin_cos (k9_real_1 (k10_real_1 k32_sin_cos np_2) \\
& X0) = k1_seq_1 k16_sin_cos X0) \wedge ((k1_seq_1 k16_sin_cos (k7_real_1 \\
& (k10_real_1 k32_sin_cos np_2) X0) = k1_seq_1 k19_sin_cos X0) \wedge \\
& ((k1_seq_1 k19_sin_cos (k7_real_1 (k10_real_1 k32_sin_cos np_2) \\
& X0) = k1_real_1 (k1_seq_1 k16_sin_cos X0)) \wedge ((k1_seq_1 k16_sin_cos \\
& (k7_real_1 k32_sin_cos X0) = k1_real_1 (k1_seq_1 k16_sin_cos X0)) \wedge \\
& (k1_seq_1 k19_sin_cos (k7_real_1 k32_sin_cos X0) = k1_real_1 (\\
& k1_seq_1 k19_sin_cos X0)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned}
& ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\
& ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k7_real_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(m1_subset_1 X1 k1_numbers))\Rightarrow(k3_real_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (5)$$

Assume the following.

$$k32_sin_cos = k31_sin_cos \quad (6)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(k21_sin_cos X0 = k20_sin_cos X0) \quad (7)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(k1_real_1 X0 = k4_xcmplx_0 X0) \quad (8)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(k18_sin_cos X0 = k17_sin_cos X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k2_xcmplx_0 X0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xreal_0 (k20_sin_cos X0)) \quad (11)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xreal_0 (k17_sin_cos X0)) \quad (12)$$

Assume the following.

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

Assume the following.

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

Assume the following.

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

Assume the following.

$$m1_subset_1 k32_sin_cos k1_numbers \quad (16)$$

Assume the following.

$$v1_xreal_0 k31_sin_cos \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k10_real_1 X0 X1) k1_numbers) \quad (18)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Leftrightarrow(X0 \in k1_numbers) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(k20_sin_cos X0 = k1_seq_1 k19_sin_cos X0) \quad (20)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(k17_sin_cos X0 = k1_seq_1 k16_sin_cos X0) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k8_real_1 X0 X1 = k8_real_1 X1 X0) \quad (22)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(v1_xreal_0 X0) \quad (23)$$

Theorem 1

$$\begin{aligned} \forall X0.(v1_xreal_0 X0)\Rightarrow(&((k18_sin_cos (k3_real_1 X0 (k8_real_1 \\ &np_2 k32_sin_cos)) = k17_sin_cos X0)\wedge((k21_sin_cos (k3_real_1 \\ &X0 (k8_real_1 np_2 k32_sin_cos)) = k20_sin_cos X0)\wedge((k18_sin_cos \\ &(k9_real_1 (k10_real_1 k32_sin_cos np_2) X0) = k20_sin_cos X0)\wedge \\ &((k21_sin_cos (k9_real_1 (k10_real_1 k32_sin_cos np_2) X0) = \\ &k17_sin_cos X0)\wedge((k18_sin_cos (k7_real_1 (k10_real_1 k32_sin_cos \\ &np_2) X0) = k20_sin_cos X0)\wedge((k21_sin_cos (k7_real_1 (k10_real_1 \\ &k32_sin_cos np_2) X0) = k4_xcmplx_0 (k17_sin_cos X0))\wedge((k18_sin_cos \\ &(k7_real_1 k32_sin_cos X0) = k4_xcmplx_0 (k17_sin_cos X0))\wedge(k21_sin_cos \\ &(k7_real_1 k32_sin_cos X0) = k4_xcmplx_0 (k20_sin_cos X0)))))))))) \end{aligned}$$