

l9_sin_cos8 (TMMdi-
Jzjr1cR8bLhmWyAYp1X84A6NYQoYME)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k3_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $k6_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k9_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k1_sin_cos5 : \iota \Rightarrow \iota$ be given. Let $k2_sin_cos5 : \iota \Rightarrow \iota$ be given. Let $k3_sin_cos5 : \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_sin_cos2 : \iota$ be given. Let $k7_binop_2 : \iota \Rightarrow \iota$ be given. Let $k1_sin_cos2 : \iota$ be given. Let $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $k7_sin_cos2 : \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k7_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $np_1 : \iota$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k5_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k2_sin_cos2 : \iota \Rightarrow \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow ((k1_seq_1 k4_sin_cos2 (k7_binop_2 \\ X0) = k1_seq_1 k4_sin_cos2 X0) \wedge ((k1_seq_1 k1_sin_cos2 (k7_binop_2 \\ X0) = k1_real_1 (k1_seq_1 k1_sin_cos2 X0)) \wedge (k1_seq_1 k7_sin_cos2 \\ (k7_binop_2 X0) = k1_real_1 (k1_seq_1 k7_sin_cos2 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (\forall X1.(v1_xcmplx_0 X1) \Rightarrow (k7_xcmplx_0 \\ X0 (k4_xcmplx_0 X1) = k4_xcmplx_0 (k7_xcmplx_0 X0 X1))) \quad (2)$$

Assume the following.

$$\begin{aligned} ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge \\ ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.k9_sin_cos2 X0 = k8_sin_cos2 X0 \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (k7_binop_2 X0 = k4_xcmplx_0 X0) \quad (5)$$

Assume the following.

$$\forall X0. k6_sin_cos2\ X0 = k5_sin_cos2\ X0 \quad (6)$$

Assume the following.

$$\forall X0. k3_sin_cos2\ X0 = k2_sin_cos2\ X0 \quad (7)$$

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.

$$\forall X0. \forall X1. ((m1_subset_1\ X0\ k1_numbers) \wedge (v1_xreal_0\ X1)) \Rightarrow (k10_real_1\ X0\ X1 = k7_xcmplx_0\ X0\ X1) \quad (9)$$

Assume the following.

$$\forall X0. (v1_xreal_0\ X0) \Rightarrow (k1_sin_cos5\ (k4_xcmplx_0\ X0) = k1_real_1\ (k1_sin_cos5\ X0)) \quad (10)$$

Assume the following.

$$\forall X0. (v1_xreal_0\ X0) \Rightarrow ((v1_xcmplx_0\ (k4_xcmplx_0\ X0)) \wedge (v1_xreal_0\ (k4_xcmplx_0\ X0))) \quad (11)$$

Assume the following.

$$\forall X0. m1_subset_1\ (k9_sin_cos2\ X0)\ k1_numbers \quad (12)$$

Assume the following.

$$\forall X0. m1_subset_1\ (k3_sin_cos2\ X0)\ k1_numbers \quad (13)$$

Assume the following.

$$\forall X0. (v1_xreal_0\ X0) \Rightarrow (m1_subset_1\ (k1_sin_cos5\ X0)\ k1_numbers) \quad (14)$$

Assume the following.

$$\forall X0. k8_sin_cos2\ X0 = k1_seq_1\ k7_sin_cos2\ X0 \quad (15)$$

Assume the following.

$$\forall X0. k5_sin_cos2\ X0 = k1_seq_1\ k4_sin_cos2\ X0 \quad (16)$$

Assume the following.

$$\forall X0. (v1_xreal_0\ X0) \Rightarrow (k3_sin_cos5\ X0 = k10_real_1\ np_1\ (k3_sin_cos2\ X0)) \quad (17)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (k2_sin_cos5 X0 = k10_real_1 np_1 (k6_sin_cos2 X0)) \quad (18)$$

Assume the following.

$$\forall X0.k2_sin_cos2 X0 = k1_seq_1 k1_sin_cos2 X0 \quad (19)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (20)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xcmplx_0 X0) \quad (21)$$

Theorem 1

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow & ((k3_sin_cos2 (k4_xcmplx_0 X0) = k4_xcmplx_0 \\ & (k3_sin_cos2 X0)) \wedge ((k6_sin_cos2 (k4_xcmplx_0 X0) = k6_sin_cos2 \\ & X0) \wedge ((k9_sin_cos2 (k4_xcmplx_0 X0) = k4_xcmplx_0 (k9_sin_cos2 \\ & X0)) \wedge ((k1_sin_cos5 (k4_xcmplx_0 X0) = k4_xcmplx_0 (k1_sin_cos5 \\ & X0)) \wedge ((k2_sin_cos5 (k4_xcmplx_0 X0) = k2_sin_cos5 X0) \wedge (k3_sin_cos5 \\ & (k4_xcmplx_0 X0) = k4_xcmplx_0 (k3_sin_cos5 X0)))))) \end{aligned}$$