

t21_sin_cos7 (TM-
PdDaoSEF69m6x7DfS3b65h8U9AMZZ8wNj)

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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 $k3_square_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k5_square_1 : \iota \Rightarrow \iota$ be given. Let $k12_binop_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k7_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k5_xcmplx_0 : \iota \Rightarrow \iota$ 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 $k3_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\neg(\neg r1_xxreal_0 X0 X1) \wedge ((\neg v2_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X1)))) \quad (1)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow (\neg(\neg r1_xxreal_0 X0 k6_numbers) \wedge ((\neg r1_xxreal_0 X2 X1) \wedge (r1_xxreal_0 (k7_xcmplx_0 X2 X0) (k7_xcmplx_0 X1 X0)))))) \quad (2)$$

Assume the following.

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

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow ((X0 \neq k6_numbers) \Rightarrow (k7_xcmplx_0 X0 X0 = np_1)) \quad (4)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\neg(r1_xxreal_0 X0 X1) \wedge ((\neg v2_xxreal_0 X1) \wedge (v2_xxreal_0 X0)))) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k7_xcmplx_0 np_1 X0 = k5_xcmplx_0 X0) \quad (6)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 \ np_1) \wedge (m2_subset_1 \ np_1 \ k1_numbers \ k5_numbers)) \wedge \\ & ((m1_subset_1 \ np_1 \ k5_numbers) \wedge (m1_subset_1 \ np_1 \ k1_numbers)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_xcmplx_0 \ X0) \wedge (v1_xcmplx_0 \ X1)) \Rightarrow (\\ & k3_xcmplx_0 \ (k5_xcmplx_0 \ X0) \ (k5_xcmplx_0 \ X1) = k5_xcmplx_0 \ (k3_xcmplx_0 \\ & \quad X0 \ X1)) \end{aligned} \quad (8)$$

Assume the following.

$$k4_xcmplx_0 \ (k4_xcmplx_0 \ np_1) = np_1 \quad (9)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1_subset_1 \ X0 \ k1_numbers) \Rightarrow (k5_square_1 \ X0 = k3_square_1 \\ & \quad X0) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_xreal_0 \ X0) \wedge (v1_xreal_0 \ X1)) \Rightarrow (k12_binop_2 \\ & \quad X0 \ X1 = k7_xcmplx_0 \ X0 \ X1) \end{aligned} \quad (12)$$

Assume the following.

$$\exists X0. (v1_xboole_0 \ X0) \wedge (v1_xxreal_0 \ X0) \quad (13)$$

Assume the following.

$$\begin{aligned} & \exists X0. (v1_xboole_0 \ X0) \wedge ((v1_xcmplx_0 \ X0) \wedge ((v1_xxreal_0 \\ & \quad X0) \wedge (v1_xreal_0 \ X0))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1_xreal_0 \ X0) \Rightarrow ((v1_xcmplx_0 \ (k4_xcmplx_0 \ X0)) \wedge \\ & \quad (v1_xreal_0 \ (k4_xcmplx_0 \ X0))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0. (v1_xreal_0 \ X0) \Rightarrow (v1_xreal_0 \ (k3_square_1 \ X0)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v3_xxreal_0 \ X0) \wedge (v1_xreal_0 \ X0)) \Rightarrow ((v1_xcmplx_0 \\ & \quad (k4_xcmplx_0 \ X0)) \wedge (\neg v2_xxreal_0 \ (k4_xcmplx_0 \ X0))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.((\neg v2_xxreal_0 X0) \wedge (v1_xreal_0 X0)) \Rightarrow ((v1_xcmplx_0 (k4_xcmplx_0 X0)) \wedge (\neg v3_xxreal_0 (k4_xcmplx_0 X0))) \quad (18)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (v1_xcmplx_0 (k5_xcmplx_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (m1_subset_1 (k12_binop_2 X0 X1) k1_numbers) \quad (20)$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k3_square_1 X0 = k3_xcmplx_0 X0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (22)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (23)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xcmplx_0 X0) \quad (24)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (v1_xreal_0 X0) \quad (25)$$

Theorem 1

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\neg(\neg r1_xxreal_0 (k3_square_1 X0) np_1) \wedge (r1_xxreal_0 np_1 (k5_square_1 (k12_binop_2 np_1 X0))))$$