

t16_topreal6

(TMTiAPiHwNupsioyKbCFG6xoX1htoXgQ6pU)

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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 $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k4_xcmplx_0 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_0 : \iota$ 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 $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xreal_0 X2) \Rightarrow (\forall X3.(v1_xreal_0 X3) \Rightarrow (((r1_xxreal_0 \\ & X0 X1) \wedge (r1_xxreal_0 X2 X3)) \Rightarrow (r1_xxreal_0 (k2_xcmplx_0 X0 X2) (\\ & k2_xcmplx_0 X1 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \tag{2}$$

Assume the following.

$$\forall X0.(v1_xcmplx_0 X0) \Rightarrow (k2_xcmplx_0 X0 k6_numbers = X0) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\ & (v1_xreal_0 X2) \Rightarrow (\forall X3.(v1_xreal_0 X3) \Rightarrow (((r1_xxreal_0 \\ & X0 X1) \wedge (r1_xxreal_0 X2 X3)) \Rightarrow (r1_xxreal_0 (k6_xcmplx_0 X0 X3) (\\ & k6_xcmplx_0 X1 X2)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_xcmplx_0 X0) \wedge (v1_xcmplx_0 X1)) \Rightarrow (\\ & k6_xcmplx_0 (k4_xcmplx_0 X0) (k4_xcmplx_0 X1) = k6_xcmplx_0 X1 \\ & X0) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0)\wedge(v1_xcmplx_0 X1))\Rightarrow(k2_xcmplx_0 (k4_xcmplx_0 X0) (k4_xcmplx_0 X1) = k4_xcmplx_0 (k2_xcmplx_0 X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0)\wedge(v1_xcmplx_0 X1))\Rightarrow(k2_xcmplx_0 X0 (k4_xcmplx_0 X1) = k6_xcmplx_0 X0 X1) \quad (7)$$

Assume the following.

$$(m2_subset_1 np_0 k1_numbers k5_numbers)\wedge((m1_subset_1 np_0 k5_numbers)\wedge(m1_subset_1 np_0 k1_numbers)) \quad (8)$$

Assume the following.

$$v1_xboole_0 np_0 \quad (9)$$

Assume the following.

$$k4_xcmplx_0 np_0 = np_0 \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0)\wedge(v1_xxreal_0 X1))\Rightarrow(r1_xxreal_0 X0 X0) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(k7_real_1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (12)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (13)$$

Assume the following.

$$\exists X0.(v1_xboole_0 X0)\wedge((v1_xcmplx_0 X0)\wedge((v1_xxreal_0 X0)\wedge(v1_xreal_0 X0))) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(v1_xreal_0 (k2_xcmplx_0 X0 X1)) \quad (15)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow((v1_xcmplx_0 (k4_xcmplx_0 X0))\wedge(v1_xreal_0 (k4_xcmplx_0 X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k7_real_1 X0 X1) k1_numbers) \quad (17)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow(k1_rcomp_1 X0 X1 = ReplSep (toset (\lambda X2 : \iota.m1_subset_1 X2 k1_numbers)) (\lambda X2 : \iota.(r1_xxreal_0 X0 X2)\wedge(r1_xxreal_0 X2 X1)) (\lambda X2 : \iota.X2)))) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xcmplx_0 X0)\wedge(v1_xcmplx_0 X1))\Rightarrow(k2_xcmplx_0 X0 X1 = k2_xcmplx_0 X1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xxreal_0 X0) \quad (20)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xcmplx_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(v1_xreal_0 X0) \quad (22)$$

Theorem 1

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow((r1_xxreal_0 k6_numbers X1)\Rightarrow(X0 \in k1_rcomp_1 (k6_xcmplx_0 X0 X1) (k2_xcmplx_0 X0 X1))))$$