

t5_convex1 (TM- RVdf9GD1TBZbNN27SMx73TE41oKNvtqyp)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_convex1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $np_1 : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_rusub_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_convex1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_rusub_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k5_numbers : \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_rlvect_1 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v1_convex1 \\ & X1 X0) \Leftrightarrow (\forall X2. (m1_subset_1 X2 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 \\ & X2 k6_numbers) \wedge ((\neg r1_xxreal_0 np_1 X2) \wedge (\neg r1_tarski (k6_rusub_4 \\ & X0 (k1_convex1 X0 X1 X2) (k1_convex1 X0 X1 (k9_real_1 np_1 X2))) \\ & X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_1) \wedge (m2_subset_1 np_1 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_1 k5_numbers) \wedge (m1_subset_1 np_1 k1_numbers)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge (l2_algstr_0 X0))) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (k7_rusub_4 \\ & X0 X1 X2 = k6_rusub_4 X0 X1 X2) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0. (l1_rlvect_1 X0) \Rightarrow (l2_algstr_0 X0) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k9_real_1 X0 X1) k1_numbers) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(l1_rlvect_1 X0))\wedge((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\wedge(m1_subset_1 X2 k1_numbers)))\Rightarrow(m1_subset_1 (k1_convex1 X0 X1 X2) (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v2_rlvect_1 X0)\wedge(l2_algstr_0 X0)))\wedge((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))\Rightarrow(k7_rusub_4 X0 X1 X2 = k7_rusub_4 X0 X2 X1)) \quad (7)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(v1_xreal_0 X0) \quad (8)$$

Theorem 1

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v2_rlvect_1 X0)\wedge(l1_rlvect_1 X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((v1_convex1 X1 X0)\Rightarrow(\forall X2.(m1_subset_1 X2 k1_numbers)\Rightarrow(\neg(\neg r1_xxreal_0 X2 k6_numbers)\wedge((\neg r1_xxreal_0 np_1 X2)\wedge(\neg r1_tarski (k7_rusub_4 X0 (k1_convex1 X0 X1 (k9_real_1 np_1 X2)) (k1_convex1 X0 X1 X2)) X1)))))))$$