

t6_topmetr3

(TMWgucpFqsgTUtpErczTD2z4D8BVeZDS8KJ)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_topmetr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_metric_1 : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $g1_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_metric_1 : \iota \Rightarrow o$ be given. Let $v6_metric_1 : \iota \Rightarrow o$ be given. Let $v7_metric_1 : \iota \Rightarrow o$ be given. Let $v8_metric_1 : \iota \Rightarrow o$ be given. Let $v9_metric_1 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $l1_metric_1 : \iota \Rightarrow o$ be given. Let $m1_topmetr : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_metric_1 : \iota$ be given. Let $u1_metric_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v1_funct_1 X1)) \Rightarrow ((r1_tarski (k10_xtuple_0 X1) X0) \Rightarrow ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k9_xtuple_0 X1) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k9_xtuple_0 X1) X0)))))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski X0 X1) \wedge (r1_tarski X1 X2)) \Rightarrow (r1_tarski X0 X2) \quad (3)$$

Assume the following.

$$\forall X0. (v1_xreal_0 X0) \Rightarrow (\forall X1. (v1_xreal_0 X1) \Rightarrow ((r1_xreal_0 X0 X1) \Rightarrow (u1_struct_0 (k2_topmetr X0 X1) = k1_rcomp_1 X0 X1))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(k1_relset_1 X0 X1 = k9_xtuple_0 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k2_zfmisc_1 X0 X0) k1_numbers))))\Rightarrow(\forall X2.\forall X3.(g1_metric_1 X0 X1 = g1_metric_1 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (7)$$

Assume the following.

$$(v1_metric_1 k8_metric_1)\wedge((v6_metric_1 k8_metric_1)\wedge((v7_metric_1 k8_metric_1)\wedge((v8_metric_1 k8_metric_1)\wedge(v9_metric_1 k8_metric_1)))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (u1_struct_0 X0)) \quad (9)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (10)$$

Assume the following.

$$\forall X0.((v6_metric_1 X0)\wedge((v7_metric_1 X0)\wedge((v8_metric_1 X0)\wedge((v9_metric_1 X0)\wedge(l1_metric_1 X0))))\Rightarrow(\forall X1.(m1_topmetr X1 X0)\Rightarrow((v6_metric_1 X1)\wedge((v7_metric_1 X1)\wedge((v8_metric_1 X1)\wedge((v9_metric_1 X1)\wedge(l1_metric_1 X1)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow(l1_struct_0 X0) \quad (12)$$

Assume the following.

$$(v1_metric_1 k8_metric_1)\wedge(l1_metric_1 k8_metric_1) \quad (13)$$

Assume the following.

$$(v1_funct_1 k7_metric_1)\wedge((v1_funct_2 k7_metric_1 (k2_zfmisc_1 k1_numbers k1_numbers) k1_numbers)\wedge(m1_subset_1 k7_metric_1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers) k1_numbers)))) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow((\neg v2_struct_0 (k2_topmetr X0 X1))\wedge((v1_metric_1 (k2_topmetr X0 X1))\wedge(m1_topmetr (k2_topmetr X0 X1) k8_metric_1))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(m1_subset_1 (k2_relset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(m1_subset_1 (k1_rcomp_1 X0 X1) (k1_zfmisc_1 k1_numbers)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(((X1\neq k1_xboole_0)\Rightarrow((v1_funct_2 X2 X0 X1)\Leftrightarrow(X0 = k1_relset_1 X0 X2)))\wedge((X1 = k1_xboole_0)\Rightarrow((v1_funct_2 X2 X0 X1)\Leftrightarrow(X2 = k1_xboole_0)))) \quad (18)$$

Assume the following.

$$k8_metric_1 = g1_metric_1 k1_numbers k7_metric_1 \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (21)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow((v1_metric_1 X0)\Rightarrow(X0 = g1_metric_1 (u1_struct_0 X0) (u1_metric_1 X0))) \quad (22)$$

Theorem 1

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(\forall X1.(v1_xreal_0 X1)\Rightarrow(\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 k5_numbers (u1_struct_0 (k2_topmetr X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (u1_struct_0 (k2_topmetr X0 X1))))))))\Rightarrow((r1_xreal_0 X0 X1)\Rightarrow((v1_funct_1 X2)\wedge((v1_funct_2 X2 k5_numbers (u1_struct_0 k8_metric_1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (u1_struct_0 k8_metric_1))))))))))$$