

t9_matrtop3

(TMQwAgXZd9u57DnerwkCUQ4vDwqsUyNQXa9)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $m1_subset1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct0 : \iota \Rightarrow \iota$ be given. Let $k15_euclid : \iota \Rightarrow \iota$ be given. Let $k2_finseq1 : \iota \Rightarrow \iota$ be given. Let $k1_seq1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_matrtop1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_matrtop3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_real1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole0 : \iota \Rightarrow o$ be given. Let $k13_fvsum1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_vectsp1 : \iota$ be given. Let $k1_matrtop1 : \iota \Rightarrow \iota$ be given. Let $k9_matrix1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xxreal0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_1 : \iota$ be given. Let $v1_relat1 : \iota \Rightarrow o$ be given. Let $v1_funct1 : \iota \Rightarrow o$ be given. Let $v3_card1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_finseq1 : \iota \Rightarrow o$ be given. Let $v3_valued0 : \iota \Rightarrow o$ be given. Let $m1_matrix1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $k1_funct1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole0 : \iota$ be given. Let $v1_funct2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_finseq1 : \iota \Rightarrow \iota$ be given. Let $v4_relat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_topreal9 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_monoid0 : \iota \Rightarrow o$ be given. Let $v5_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rlvect1 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $l1_struct0 : \iota \Rightarrow o$ be given. Let $v1_matrix6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_monoid0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \neg(X0 \in X1) \wedge (v1_xboole0 X1) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (v7_ordinal1 X0) \Rightarrow (\forall X1. (v7_ordinal1 X1) \Rightarrow (\forall X2. \\ (m1_subset1 X2 (u1_struct0 (k15_euclid X1))) \Rightarrow ((X0 \in k2_finseq1 \\ X1) \Rightarrow (k13_fvsum1 k2_vectsp1 (k1_matrtop1 X2) (k9_matrix1 (\\ u1_struct0 k2_vectsp1) (k1_matrtop3 X1 X0) X0) = k1_real1 (k1_seq1 \\ X2 X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (v7_ordinal1 X0) \Rightarrow (\forall X1. (v7_ordinal1 X1) \Rightarrow ((\\ X0 \in k2_finseq1 X1) \Leftrightarrow ((r1_xxreal0 np_1 X0) \wedge (r1_xxreal0 X0 X1)))) \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v7_ordinal1\ X0) \Rightarrow (\forall X1.(v7_ordinal1\ X1) \Rightarrow (\forall X2. \\
& \quad (v7_ordinal1\ X2) \Rightarrow (\forall X3. ((v1_relat_1\ X3) \wedge ((v1_funct_1 \\
& \quad X3) \wedge ((v3_card_1\ X3\ X2) \wedge ((v1_finseq_1\ X3) \wedge (v3_valued_0\ X3)))))) \Rightarrow \\
& \quad (\forall X4.(m1_matrix_1\ X4\ (u1_struct_0\ k2_vectsp_1)\ X2\ X1) \Rightarrow \\
& \quad ((r1_xxreal_0\ np_1\ X0) \wedge (r1_xxreal_0\ X0\ X1)) \Rightarrow ((X2 = k6_numbers) \vee \\
& \quad (k1_funct_1\ (k1_funct_1\ (k3_matrtop1\ X2\ X1\ X4)\ X3)\ X0 = k13_fvsum_1 \\
& \quad k2_vectsp_1\ (k1_matrtop1\ X3)\ (k9_matrix_1\ (u1_struct_0\ k2_vectsp_1) \\
& \quad X4\ X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$k6_numbers = k1_xboole_0 \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3. ((\neg v1_xboole_0\ X0) \wedge \\
& \quad (((v1_funct_1\ X2) \wedge ((v1_funct_2\ X2\ X0\ X1) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1\ X0\ X1)))))) \wedge (m1_subset_1\ X3\ X0))) \Rightarrow (k3_funct_2\ X0 \\
& \quad X1\ X2\ X3 = k1_funct_1\ X2\ X3)
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0) \Rightarrow (k2_finseq_1\ X0 = k1_finseq_1\ X0) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1. ((v1_relat_1\ X0) \wedge ((v1_funct_1\ X0) \wedge (v3_valued_0\ X0))) \Rightarrow (k1_seq_1\ X0\ X1 = k1_funct_1\ X0\ X1) \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v7_ordinal1\ X0) \Rightarrow (\exists X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1\ (u1_struct_0\ (k15_euclid\ X0))\ (u1_struct_0\ (k15_euclid \\
& \quad X0)))))) \wedge ((\neg v1_xboole_0\ X1) \wedge ((v1_relat_1\ X1) \wedge ((v4_relat_1\ X1 \\
& \quad (u1_struct_0\ (k15_euclid\ X0)) \wedge ((v5_relat_1\ X1\ (u1_struct_0 \\
& \quad (k15_euclid\ X0)) \wedge ((v1_funct_1\ X1) \wedge ((v1_partfun1\ X1\ (u1_struct_0 \\
& \quad (k15_euclid\ X0)) \wedge ((v1_funct_2\ X1\ (u1_struct_0\ (k15_euclid\ X0)) \\
& \quad (u1_struct_0\ (k15_euclid\ X0))))))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0) \Rightarrow ((v2_monoid_0\ (k15_euclid\ X0)) \wedge (v5_rltopsp1\ (k15_euclid\ X0))) \tag{10}$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0) \Rightarrow (v3_card_1\ (k1_finseq_1\ X0)\ X0) \tag{11}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(m1_matrix_1\ X1\ (u1_struct_0 \\ k2_vectsp_1)\ X0\ X0))\Rightarrow((v1_funct_1\ (k3_matrtop1\ X0\ X0\ X1))\wedge((v1_funct_2 \\ (k3_matrtop1\ X0\ X0\ X1)\ (u1_struct_0\ (k15_euclid\ X0))\ (u1_struct_0 \\ (k15_euclid\ X0)))\wedge(v1_topreal9\ (k3_matrtop1\ X0\ X0\ X1)\ X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((v7_ordinal1\ X0)\wedge \\ ((v7_ordinal1\ X1)\wedge(m1_matrix_1\ X2\ (u1_struct_0\ k2_vectsp_1) \\ X0\ X1)))\Rightarrow((v1_finseq_1\ (k1_funct_1\ (k3_matrtop1\ X0\ X1\ X2)\ X3))\wedge \\ (v3_valued_0\ (k1_funct_1\ (k3_matrtop1\ X0\ X1\ X2)\ X3))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((v7_ordinal1\ X0)\wedge \\ ((v7_ordinal1\ X1)\wedge(m1_matrix_1\ X2\ (u1_struct_0\ k2_vectsp_1) \\ X0\ X1)))\Rightarrow((v1_relat_1\ (k1_funct_1\ (k3_matrtop1\ X0\ X1\ X2)\ X3))\wedge \\ (v1_funct_1\ (k1_funct_1\ (k3_matrtop1\ X0\ X1\ X2)\ X3))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(l1_rltopsp1\ X0)\Rightarrow((l1_rlvect_1\ X0)\wedge(l1_pre_topc\ X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow(l1_struct_0\ X0) \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v7_ordinal1\ X0)\wedge((v7_ordinal1 \\ X1)\wedge(m1_matrix_1\ X2\ (u1_struct_0\ k2_vectsp_1)\ X0\ X1)))\Rightarrow((v1_funct_1 \\ (k3_matrtop1\ X0\ X1\ X2))\wedge((v1_funct_2\ (k3_matrtop1\ X0\ X1\ X2)\ (u1_struct_0 \\ (k15_euclid\ X0))\ (u1_struct_0\ (k15_euclid\ X1))))\wedge(m1_subset_1 \\ (k3_matrtop1\ X0\ X1\ X2)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0 \\ (k15_euclid\ X0))\ (u1_struct_0\ (k15_euclid\ X1)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v7_ordinal1\ X0)\wedge(v7_ordinal1\ X1))\Rightarrow(\\ (v1_matrix_6\ (k1_matrtop3\ X0\ X1)\ X0\ k2_vectsp_1)\wedge(m1_matrix_1 \\ (k1_matrtop3\ X0\ X1)\ (u1_struct_0\ k2_vectsp_1)\ X0\ X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(v7_ordinal1\ X0)\Rightarrow((v5_rltopsp1\ (k15_euclid\ X0))\wedge \\ (l1_rltopsp1\ (k15_euclid\ X0))) \quad (19)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow ((v1_xboole_0 X1) \wedge ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)))) \quad (20)$$

Assume the following.

$$\forall X0.(v3_card_1 X0 k1_xboole_0) \Rightarrow (v1_xboole_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid X0))) \Rightarrow (v3_card_1 X1 X0)) \quad (22)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid X0))) \Rightarrow (v3_valued_0 X1)) \quad (23)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow ((v2_monoid_0 X0) \Rightarrow (v1_monoid_0 X0)) \quad (24)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k15_euclid X0))) \Rightarrow (v1_finseq_1 X1)) \quad (25)$$

Assume the following.

$$\forall X0.((v1_monoid_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v1_relat_1 X1) \wedge (v1_funct_1 X1))) \quad (26)$$

Theorem 1

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (\forall X1.(v7_ordinal1 X1) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k15_euclid X1))) \Rightarrow ((X0 \in k2_finseq_1 X1) \Rightarrow (k1_seq_1 (k3_funct_2 (u1_struct_0 (k15_euclid X1)) (u1_struct_0 (k15_euclid X1)) (k3_matrtop1 X1 X1 (k1_matrtop3 X1 X0)) X2) X0 = k1_real_1 (k1_seq_1 X2 X0))))))$$