

# t3\_matrixr1 (TM- MUF3hg4iD3XdDcNKG1B3S4aGieb2Mm6h8)

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Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k4\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_euclid : \iota \Rightarrow \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k8\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k5\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k45\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k30\_valued\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_euclid : \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v2\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Rightarrow (m2\_finseq\_2 X1 X0 (k4\_finseq\_2 (k3\_finseq\_1 X1) X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. (v7\_ordinal1 X0) \Rightarrow (\forall X1. (m2\_finseq\_2 X1 k1\_numbers (k4\_finseq\_2 X0 k1\_numbers)) \Rightarrow (k5\_rvsum\_1 X0 X1 (k7\_rvsum\_1 X0 X1) = k5\_finseq\_2 k5\_numbers X0 k6\_numbers)) \quad (3)$$

Assume the following.

$$m1\_subset\_1 \ k1\_xboole\_0 \ k4\_ordinal1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski \ X0 \ X0 \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 \ X0) \wedge ((\neg v1\_xboole\_0 \ X1) \wedge \\ (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 \ X1 \ X0) \Rightarrow (\forall X2.(m2\_finseq\_2 \\ X2 \ X0 \ X1) \Leftrightarrow (m1\_subset\_1 \ X2 \ X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 \ X1 \ X0) \Leftrightarrow (m1\_finseq\_1 \ X1 \ X0) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge ( \\ v3\_valued\_0 \ X0) \wedge (v1\_finseq\_1 \ X0)))) \wedge ((v1\_relat\_1 \ X1) \wedge ((v1\_funct\_1 \\ X1) \wedge ((v3\_valued\_0 \ X1) \wedge (v1\_finseq\_1 \ X1)))))) \Rightarrow (k8\_rvsum\_1 \ X0 \ X1 = \\ k45\_valued\_1 \ X0 \ X1) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 \ X0) \wedge (m1\_subset\_1 \ X1 \ (k4\_finseq\_2 \\ X0 \ k1\_numbers))) \Rightarrow (k7\_rvsum\_1 \ X0 \ X1 = k30\_valued\_1 \ X1) \quad (10)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 \ X0) \wedge ((v1\_funct\_1 \ X0) \wedge ((v3\_valued\_0 \\ X0) \wedge (v1\_finseq\_1 \ X0)))) \Rightarrow (k6\_rvsum\_1 \ X0 = k30\_valued\_1 \ X0) \quad (11)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((v7\_ordinal1 \ X0) \wedge ((m1\_subset\_1 \\ X1 \ (k4\_finseq\_2 \ X0 \ k1\_numbers)) \wedge (m1\_subset\_1 \ X2 \ (k4\_finseq\_2 \\ X0 \ k1\_numbers)))) \Rightarrow (k5\_rvsum\_1 \ X0 \ X1 \ X2 = k1\_valued\_1 \ X1 \ X2) \end{aligned} \quad (13)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((v7\_ordinal1 X1)\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(k5\_finseq\_2 X0 X1 X2 = k2\_finseq\_2 X1 X2) \quad (15)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(k5\_euclid X0 = k4\_euclid X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge((v3\_valued\_0 X0)\wedge(v1\_finseq\_1 X0))))\wedge((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge((v3\_valued\_0 X1)\wedge(v1\_finseq\_1 X1))))))\Rightarrow(k4\_rvsum\_1 X0 X1 = k1\_valued\_1 X0 X1) \quad (17)$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\exists X1.(m1\_finseq\_1 X1 X0)\wedge((v1\_relat\_1 X1)\wedge((v4\_relat\_1 X1 k5\_numbers)\wedge((v5\_relat\_1 X1 X0)\wedge((v1\_funct\_1 X1)\wedge((\neg v1\_xboole\_0 X1)\wedge((v1\_finset\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(v2\_finseq\_1 X1)))))))))) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0)\wedge(m1\_subset\_1 X1 (k4\_finseq\_2 X0 k1\_numbers)))\Rightarrow(k7\_rvsum\_1 X0 (k7\_rvsum\_1 X0 X1) = X1) \quad (19)$$

Assume the following.

$$v6\_membered k4\_ordinal1 \quad (20)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Rightarrow(m1\_subset\_1 X2 X0)) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0)\Rightarrow(\forall X2.(m2\_finseq\_2 X2 X0 X1)\Rightarrow(m2\_finseq\_1 X2 X0)) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow((v1\_funct\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0)\wedge(m1\_subset\_1 X1 (k4\_finseq\_2 X0 k1\_numbers)))\Rightarrow(m2\_finseq\_2 (k7\_rvsum\_1 X0 X1) k1\_numbers (k4\_finseq\_2 X0 k1\_numbers)) \quad (26)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge((v3\_valued\_0 X0)\wedge(v1\_finseq\_1 X0))))\Rightarrow(m2\_finseq\_1 (k6\_rvsum\_1 X0) k1\_numbers) \quad (27)$$

Assume the following.

$$m2\_subset\_1 k6\_numbers k1\_numbers k5\_numbers \quad (28)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (29)$$

Assume the following.

$$\forall X0.\forall X1.(v7\_ordinal1 X0)\Rightarrow(m1\_finseq\_2 (k4\_finseq\_2 X0 X1) X1) \quad (30)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow(m2\_subset\_1 (k3\_finseq\_1 X0) k1\_numbers k5\_numbers) \quad (31)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_valued\_0 X0)))\Rightarrow(\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_valued\_0 X1))))\Rightarrow(k45\_valued\_1 X0 X1 = k1\_valued\_1 X0 (k30\_valued\_1 X1)) \quad (32)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(k4\_euclid X0 = k5\_finseq\_2 k1\_numbers X0 k6\_numbers) \quad (33)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge (v3\_valued\_0 X0)) \Rightarrow ((v1\_relat\_1 X0) \wedge (v1\_valued\_0 X0)) \quad (34)$$

Assume the following.

$$\forall X0. \forall X1. (v1\_xboole\_0 X0) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_xboole\_0 X2)) \quad (35)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_finseq\_1 X1 X0) \Rightarrow (v5\_relat\_1 X1 X0) \quad (36)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v5\_relat\_1 X0 k1\_numbers)) \Rightarrow ((v1\_relat\_1 X0) \wedge (v3\_valued\_0 X0)) \quad (37)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1)) \quad (38)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (39)$$

Assume the following.

$$\forall X0. (v6\_membered X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 X0) \Rightarrow (v7\_ordinal1 X1)) \quad (40)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge (v1\_valued\_0 X0)) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_valued\_0 X1)) \quad (41)$$

**Theorem 1**

$$\forall X0. (m2\_finseq\_1 X0 k1\_numbers) \Rightarrow ((k4\_rvsum\_1 X0 (k6\_rvsum\_1 X0) = k5\_euclid (k3\_finseq\_1 X0)) \wedge (k8\_rvsum\_1 X0 X0 = k5\_euclid (k3\_finseq\_1 X0)))$$