

l23_mesfun9c (TMdY-
BEcWWuNX4qFFxHB8fi9BPJEiwttPhb1)

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Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k4_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_numbers : \iota$ 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 $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k4_mesfunc5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_mesfun9c : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_mesfun7c : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_comseq_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_comseq_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_comseq_3 : \iota \Rightarrow \iota$ be given. Let $k3_comseq_3 : \iota \Rightarrow \iota$ be given. Let $k3_rfunct_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & (v1_funct_2 X1 k5_numbers (k4_partfun1 X0 k2_numbers)) \wedge (m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 X0 k2_numbers)))))) \Rightarrow \\ & (\forall X2. (v7_ordinal1 X2) \Rightarrow ((r2_relset_1 X0 k1_numbers (k4_mesfunc5 \\ & X0 k1_numbers (k11_mesfun7c X0 X1) X2) (k5_comseq_3 X0 (k4_mesfunc5 \\ & X0 k2_numbers X1 X2))) \wedge (r2_relset_1 X0 k1_numbers (k4_mesfunc5 \\ & X0 k1_numbers (k12_mesfun7c X0 X1) X2) (k6_comseq_3 X0 (k4_mesfunc5 \\ & X0 k2_numbers X1 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge (\\ & m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k2_numbers)))) \Rightarrow (\\ & \forall X2. (r2_relset_1 X0 k1_numbers (k2_partfun1 X0 k1_numbers \\ & (k5_comseq_3 X0 X1) X2) (k5_comseq_3 X0 (k2_partfun1 X0 k2_numbers \\ & X1 X2))) \wedge (r2_relset_1 X0 k1_numbers (k2_partfun1 X0 k1_numbers \\ & (k6_comseq_3 X0 X1) X2) (k6_comseq_3 X0 (k2_partfun1 X0 k2_numbers \\ & X1 X2)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow((r2_relset_1 X0 X1 X2 X3)\Leftrightarrow(X2 = X3)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k2_numbers))))\Rightarrow(k6_comseq_3 X0 X1 = k4_comseq_3 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k2_numbers))))\Rightarrow(k5_comseq_3 X0 X1 = k3_comseq_3 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge((v1_funct_2 X2 k5_numbers (k3_rfunct_3 X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k3_rfunct_3 X0 X1))))))\wedge(v7_ordinal1 X3))\Rightarrow(k4_mesfunc5 X0 X1 X2 X3 = k1_funct_1 X2 X3) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.k3_rfunct_3 X0 X1 = k4_partfun1 X0 X1 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1 X2)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow(k2_partfun1 X0 X1 X2 X3 = k5_relat_1 X2 X3) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k2_numbers))))\Rightarrow((v1_funct_1 (k6_comseq_3 X0 X1))\wedge(m1_subset_1 (k6_comseq_3 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1_funct_1 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 k2_numbers))))\Rightarrow((v1_funct_1 (k5_comseq_3 X0 X1))\wedge(m1_subset_1 (k5_comseq_3 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 k5_numbers (k3_rfunc3 X0 X1))\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k3_rfunc3 X0 X1))))))\wedge \\ & (v7_ordinal1 X3))\Rightarrow((v1_funct_1 (k4_mesfunc5 X0 X1 X2 X3))\wedge(m1_subset_1 \\ & (k4_mesfunc5 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1 X2)\wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))\Rightarrow((v1_funct_1 \\ & (k2_partfun1 X0 X1 X2 X3))\wedge(m1_subset_1 (k2_partfun1 X0 X1 X2 X3) \\ & (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1 X2)\wedge \\ & ((v1_funct_2 X2 k5_numbers (k4_partfun1 X0 X1))\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 X0 X1))))))\Rightarrow \\ & ((v1_funct_1 (k1_mesfun9c X0 X1 X2 X3))\wedge((v1_funct_2 (k1_mesfun9c \\ & X0 X1 X2 X3) k5_numbers (k4_partfun1 X0 X1))\wedge(m1_subset_1 (k1_mesfun9c \\ & X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 \\ & X0 X1)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(\\ & (v1_funct_2 X1 k5_numbers (k4_partfun1 X0 k2_numbers))\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 X0 k2_numbers))))))\Rightarrow \\ & ((v1_funct_1 (k12_mesfun7c X0 X1))\wedge((v1_funct_2 (k12_mesfun7c \\ & X0 X1) k5_numbers (k4_partfun1 X0 k1_numbers))\wedge(m1_subset_1 (\\ & k12_mesfun7c X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 \\ & X0 k1_numbers)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((v1_funct_1 X1)\wedge(\\ & (v1_funct_2 X1 k5_numbers (k4_partfun1 X0 k2_numbers))\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 X0 k2_numbers))))))\Rightarrow \\ & ((v1_funct_1 (k11_mesfun7c X0 X1))\wedge((v1_funct_2 (k11_mesfun7c \\ & X0 X1) k5_numbers (k4_partfun1 X0 k1_numbers))\wedge(m1_subset_1 (\\ & k11_mesfun7c X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 \\ & X0 k1_numbers)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((v1_funct_1 X2)\wedge((v1_funct_2 \\
& X2 k5_numbers (k4_partfun1 X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 k5_numbers (k4_partfun1 X0 X1))))))\Rightarrow(\forall X3. \\
& \forall X4.((v1_funct_1 X4)\wedge((v1_funct_2 X4 k5_numbers (k4_partfun1 \\
& X0 X1))\wedge(m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers \\
& (k4_partfun1 X0 X1))))))\Rightarrow((X4 = k1_mesfun9c X0 X1 X2 X3)\Leftrightarrow(\forall X5. \\
& (v7_ordinal1 X5)\Rightarrow(r2_relset_1 X0 X1 (k4_mesfunc5 X0 X1 X4 X5) (k2_partfun1 \\
& X0 X1 (k4_mesfunc5 X0 X1 X2 X5) X3))))))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.\forall X2.((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 k5_numbers (k4_partfun1 X0 k2_numbers))\wedge \\
& (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k4_partfun1 \\
& X0 k2_numbers))))))\Rightarrow(\forall X3.(v7_ordinal1 X3)\Rightarrow((r2_relset_1 \\
& X0 k1_numbers (k4_mesfunc5 X0 k1_numbers (k11_mesfun7c X0 (k1_mesfun9c \\
& X0 k2_numbers X2 X1)) X3) (k2_partfun1 X0 k1_numbers (k4_mesfunc5 \\
& X0 k1_numbers (k11_mesfun7c X0 X2) X3) X1))\wedge(r2_relset_1 X0 k1_numbers \\
& (k4_mesfunc5 X0 k1_numbers (k12_mesfun7c X0 (k1_mesfun9c X0 k2_numbers \\
& X2 X1)) X3) (k2_partfun1 X0 k1_numbers (k4_mesfunc5 X0 k1_numbers \\
& (k12_mesfun7c X0 X2) X3) X1))))))
\end{aligned}$$