

t6_cfuncdom (TMMri-
TEX3rE18kDzfkWwXzT1xm3Q9ngxPH)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_numbers : \iota$ be given. Let $k9_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funcsdom : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_cfuncdom : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_complex1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xcmplx_0 : \iota \Rightarrow o$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m2_funct_2 X1 X0 k2_numbers \\ & (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X2. (m2_funct_2 X2 X0 k2_numbers \\ & (k9_funct_2 X0 k2_numbers)) \Rightarrow (\forall X3. (m2_funct_2 X3 X0 k2_numbers \\ & (k9_funct_2 X0 k2_numbers)) \Rightarrow ((r2_funct_2 X0 k2_numbers X1 (k1_funcsdom \\ & X0 k2_numbers (k1_cfuncdom X0) X2 X3)) \Leftrightarrow (\forall X4. (m1_subset_1 \\ & X4 X0) \Rightarrow (k3_funct_2 X0 k2_numbers X1 X4 = k8_complex1 (k3_funct_2 \\ & X0 k2_numbers X2 X4) (k3_funct_2 X0 k2_numbers X3 X4)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v1_xcmplx_0 X0) \wedge ((v1_xcmplx_0 \\ & X1) \wedge (v1_xcmplx_0 X2))) \Rightarrow (k2_xcmplx_0 (k2_xcmplx_0 X0 X1) X2 = k2_xcmplx_0 \\ & X0 (k2_xcmplx_0 X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\ & ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow (r2_funct_2 X0 X1 X2 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 X2 X0 X1))\Rightarrow(\forall X3.(m2_funct_2 X3 X0 X1 X2)\Leftrightarrow(m1_subset_1 X3 X2)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(k9_funct_2 X0 X1 = k1_funct_2 X0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k2_numbers)\wedge(m1_subset_1 X1 k2_numbers))\Rightarrow(k8_complex1 X0 X1 = k2_xcmplx_0 X0 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 X1 X2 X3 = k1_funct_1 X2 X3) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1))))))\wedge((m1_subset_1 X3 (k9_funct_2 X0 X1))\wedge(m1_subset_1 X4 (k9_funct_2 X0 X1))))))\Rightarrow(k1_funcsdom X0 X1 X2 X3 X4 = k1_binop_1 X2 X3 X4) \quad (8)$$

Assume the following.

$$\neg v1_xboole_0 k2_numbers \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 X2 X0 X1))\Rightarrow(\exists X3.m2_funct_2 X3 X0 X1 X2) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1)\wedge(m1_funct_2 X2 X0 X1))\Rightarrow(\forall X3.(m2_funct_2 X3 X0 X1 X2)\Rightarrow((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X1)\Rightarrow(m1_funct_2 (k9_funct_2 X0 X1) X0 X1) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(m1_subset_1 (k3_funct_2 X0 X1 X2 X3) X1) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 X1)\wedge(((v1_funct_1 X2)\wedge((v1_funct_2 X2 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 X1) (k9_funct_2 X0 X1)) (k9_funct_2 X0 X1))))))\wedge((m1_subset_1 X3 (k9_funct_2 X0 X1))\wedge(m1_subset_1 X4 (k9_funct_2 X0 X1))))))\Rightarrow(m2_funct_2 (k1_funcsdom X0 X1 X2 X3 X4) X0 X1 (k9_funct_2 X0 X1)) \quad (14)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow((v1_funct_1 (k1_cfunclom X0))\wedge(((v1_funct_2 (k1_cfunclom X0) (k2_zfmisc_1 (k9_funct_2 X0 k2_numbers) (k9_funct_2 X0 k2_numbers)) (k9_funct_2 X0 k2_numbers))\wedge(m1_subset_1 (k1_cfunclom X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k9_funct_2 X0 k2_numbers) (k9_funct_2 X0 k2_numbers)) (k9_funct_2 X0 k2_numbers)))))))) \quad (15)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k2_numbers)\Rightarrow(v1_xcmplx_0 X0) \quad (16)$$

Theorem 1

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m2_funct_2 X1 X0 k2_numbers (k9_funct_2 X0 k2_numbers))\Rightarrow(\forall X2.(m2_funct_2 X2 X0 k2_numbers (k9_funct_2 X0 k2_numbers))\Rightarrow(\forall X3.(m2_funct_2 X3 X0 k2_numbers (k9_funct_2 X0 k2_numbers))\Rightarrow(r2_funct_2 X0 k2_numbers (k1_funcsdom X0 k2_numbers (k1_cfunclom X0) X1 (k1_funcsdom X0 k2_numbers (k1_cfunclom X0) X2 X3)) (k1_funcsdom X0 k2_numbers (k1_cfunclom X0) (k1_funcsdom X0 k2_numbers (k1_cfunclom X0) X1 X2) X3))))))$$