

t57_pre_poly (TM-
FVW2kt2JUv8BeWCC2GLyvZMKcim3oXXSq)

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Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_valued_0 : \iota \Rightarrow o$ be given. Let $v2_pre_poly : \iota \Rightarrow o$ be given. Let $r3_pre_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_pre_poly : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_pre_poly : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k7_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k8_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. k1_funct_1 (k16_pre_poly X0) X1 = k6_numbers \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 X0) \wedge \\ & (v1_funct_1 X1) \wedge (v1_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \Rightarrow \\ & ((\forall X3. (X3 \in X0) \Rightarrow (k1_funct_1 X1 X3 = k1_funct_1 X2 X3)) \Rightarrow (X1 = \\ & X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (v7_ordinal1 X0) \Rightarrow (\forall X1. (v7_ordinal1 X1) \Rightarrow ((k7_nat_d X0 X1 = k6_numbers) \Rightarrow (r1_xxreal_0 X0 X1))) \quad (3)$$

Assume the following.

$$\forall X0. (v1_xxreal_0 X0) \Rightarrow (\forall X1. (v1_xxreal_0 X1) \Rightarrow ((r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1)) \quad (4)$$

Assume the following.

$$m1_subset_1 k1_xboole_0 k4_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & ((r6_pboole X0 X1 X2) \Leftrightarrow (X1 = X2)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X2 X0)) \Rightarrow (k8_funcop_1 X0 X1 X2 = k2_funcop_1 X1 X2) \quad (7)$$

Assume the following.

$$k6_numbers = k1_xboole_0 \quad (8)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (9)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1) \wedge (v3_ordinal1 k4_ordinal1) \quad (10)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v4_valued_0 X0))) \Rightarrow (v7_ordinal1 (k1_funct_1 X0 X1)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge ((v1_partfun1 X1 X0) \wedge ((v4_valued_0 X1) \wedge \\ & (v2_pre_poly X1)))))) \wedge ((v1_relat_1 X2) \wedge ((v4_relat_1 X2 X0) \wedge \\ & ((v1_funct_1 X2) \wedge ((v1_partfun1 X2 X0) \wedge ((v4_valued_0 X2) \wedge (v2_pre_poly \\ & X2))))))) \Rightarrow ((v1_relat_1 (k12_pre_poly X0 X1 X2)) \wedge ((v4_relat_1 \\ & (k12_pre_poly X0 X1 X2) X0) \wedge ((v1_funct_1 (k12_pre_poly X0 X1 X2)) \wedge \\ & ((v1_partfun1 (k12_pre_poly X0 X1 X2) X0) \wedge (v2_pre_poly (k12_pre_poly \\ & X0 X1 X2)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (v1_relat_1 (k2_funcop_1 X0 X1)) \wedge ((v4_relat_1 \\ & (k2_funcop_1 X0 X1) X0) \wedge ((v1_funct_1 (k2_funcop_1 X0 X1)) \wedge (v1_partfun1 \\ & (k2_funcop_1 X0 X1) X0))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0. \forall X1. (v1_relat_1 (k2_funcop_1 X0 X1)) \wedge (v1_funct_1 (k2_funcop_1 X0 X1)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.v4_relat_1 (k2_funcop_1 X0 X1) X0 \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge(v4_valued_0 X1))))\Rightarrow(\\ & \quad \forall X2.((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 \\ & \quad X2)\wedge((v1_partfun1 X2 X0)\wedge(v4_valued_0 X2))))\Rightarrow(\forall X3.(\\ & (v1_relat_1 X3)\wedge((v4_relat_1 X3 X0)\wedge((v1_funct_1 X3)\wedge(v1_partfun1 \\ & \quad X3 X0))))\Rightarrow((X3 = k12_pre_poly X0 X1 X2)\Leftrightarrow(\forall X4.k1_funct_1 \\ & \quad X3 X4 = k7_nat_d (k1_funct_1 X1 X4) (k1_funct_1 X2 X4)))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.k16_pre_poly X0 = k8_funcop_1 k5_numbers X0 k6_numbers \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v4_valued_0 X1)\wedge(v2_pre_poly \\ & \quad X1))))\Rightarrow(\forall X2.((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge \\ & (v1_funct_1 X2)\wedge((v1_partfun1 X2 X0)\wedge((v4_valued_0 X2)\wedge(v2_pre_poly \\ & \quad X2))))\Rightarrow((r3_pre_poly X0 X1 X2)\Leftrightarrow(\forall X3.r1_xxreal_0 (k1_funct_1 \\ & \quad X1 X3) (k1_funct_1 X2 X3)))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0)\Rightarrow(v1_xxreal_0 X0) \quad (19)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge \\ & (v1_funct_1 X1)\wedge((v1_partfun1 X1 X0)\wedge((v4_valued_0 X1)\wedge(v2_pre_poly \\ & \quad X1))))\Rightarrow(\forall X2.((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge \\ & (v1_funct_1 X2)\wedge((v1_partfun1 X2 X0)\wedge((v4_valued_0 X2)\wedge(v2_pre_poly \\ & \quad X2))))\Rightarrow(((r3_pre_poly X0 X1 X2)\wedge(r6_pboole X0 (k12_pre_poly \\ & \quad X0 X2 X1) (k16_pre_poly X0)))\Rightarrow(r6_pboole X0 X2 X1))) \end{aligned}$$