

t29_rewrite3

(TMHzH2Q36iCk4KP9zVfMUaMNpS7sKszkUNB)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $l1_rewrite3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_flang_1 : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $u1_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $v3_xxreal_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $r1_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_flang_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $k1_card_1 : \iota \Rightarrow \iota$ be given. Let $v1_card_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow ((r1_xxreal_0 X0 X1) \Rightarrow ((v1_xboole_0 X0) \vee ((v2_xxreal_0 X1) \vee (v3_xxreal_0 X0)))))) \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (\neg v1_xboole_0 X3) \Rightarrow \\ & (\forall X4.(m1_subset_1 X4 (k1_zfmisc_1 (k8_afinsq_1 X3))) \Rightarrow \\ & (\forall X5.(l1_rewrite3 X5 X4) \Rightarrow (\neg(\neg k2_flang_1 X3 \in k10_xtuple_0 \\ & (k9_xtuple_0 (u1_rewrite3 X4 X5)))) \wedge (r2_rewrite3 X3 X4 X5 X0 X1 X2 \\ & X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2)\Rightarrow(\forall X3. \\
& (m1_subset_1 X3 (k8_afinsq_1 X2))\Rightarrow(\forall X4.(m1_subset_1 X4 \\
& (k8_afinsq_1 X2))\Rightarrow(\forall X5.(m1_subset_1 X5 (k1_zfmisc_1 (\\
& k8_afinsq_1 X2)))\Rightarrow(\forall X6.(l1_rewrite3 X6 X5)\Rightarrow(\neg(r2_rewrite3 \\
& X2 X5 X6 X0 X3 X1 X4)\wedge(\forall X7.(m1_subset_1 X7 (k8_afinsq_1 X2))\Rightarrow \\
& (\neg(r1_rewrite3 X5 X6 X0 X7 X1)\wedge(X3 = k1_flang_1 X2 X7 X4))))))))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(l1_rewrite3 \\
& X4 X0)\Rightarrow((r1_rewrite3 X0 X4 X1 X2 X3)\Rightarrow((r1_struct_0 X4 X1)\wedge((X2 \in \\
& X0)\wedge((r1_struct_0 X4 X3)\wedge((X1 \in k9_xtuple_0 (k9_xtuple_0 (u1_rewrite3 \\
& X0 X4)))\wedge((X2 \in k10_xtuple_0 (k9_xtuple_0 (u1_rewrite3 X0 X4)))\wedge \\
& (X3 \in k10_xtuple_0 (u1_rewrite3 X0 X4))))))))) \\
& \tag{5}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k8_afinsq_1 \\
& X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (k8_afinsq_1 X0))\Rightarrow(\forall X3. \\
& (m1_subset_1 X3 (k8_afinsq_1 X0))\Rightarrow((X1 = k1_flang_1 X0 X2 X3)\Rightarrow(\\
& (X2 = k2_flang_1 X0)\vee((X3 = k2_flang_1 X0)\vee((\neg r1_xxreal_0 (k1_afinsq_1 \\
& X1) (k1_afinsq_1 X2))\wedge(\neg r1_xxreal_0 (k1_afinsq_1 X1) (k1_afinsq_1 \\
& X3)))))))))) \\
& \tag{6}
\end{aligned}$$

Assume the following.

$$\forall X0.k2_flang_1 X0 = k4_afinsq_1 X0 \tag{7}$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge((v5_ordinal1 X0)\wedge((v1_funct_1 X0)\wedge(v1_finset_1 X0))))\Rightarrow(k1_afinsq_1 X0 = k1_card_1 X0) \tag{8}$$

Assume the following.

$$\forall X0.(v1_finset_1 X0)\Rightarrow((v1_finset_1 (k1_card_1 X0))\wedge(v1_card_1 (k1_card_1 X0))) \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_relat_1 (k4_afinsq_1 X0))\wedge((v5_relat_1 (k4_afinsq_1 \\
& X0) X0)\wedge((v5_ordinal1 (k4_afinsq_1 X0))\wedge((v1_funct_1 (k4_afinsq_1 \\
& X0))\wedge((v1_xboole_0 (k4_afinsq_1 X0))\wedge(v1_finset_1 (k4_afinsq_1 \\
& X0)))))) \\
& \tag{10}
\end{aligned}$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0)\Rightarrow((\neg v1_xboole_0 (k1_card_1 X0))\wedge(v1_card_1 (k1_card_1 X0))) \tag{11}$$

Assume the following.

$$\forall X0.v4_funct_1 (k8_afinsq_1 X0) \quad (12)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (13)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow ((v1_xboole_0 (k1_card_1 X0)) \wedge (v1_card_1 (k1_card_1 X0))) \quad (14)$$

Assume the following.

$$\forall X0.v1_card_1 (k1_card_1 X0) \quad (15)$$

Assume the following.

$$\forall X0.(v4_funct_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_relat_1 X1) \wedge (v1_funct_1 X1)) \quad (16)$$

Assume the following.

$$\forall X0.((v3_ordinal1 X0) \wedge (v1_finset_1 X0)) \Rightarrow (v7_ordinal1 X0) \quad (17)$$

Assume the following.

$$\forall X0.((v1_xxreal_0 X0) \wedge (v2_xxreal_0 X0)) \Rightarrow ((\neg v1_xboole_0 X0) \wedge ((v1_xxreal_0 X0) \wedge (\neg v3_xxreal_0 X0))) \quad (18)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow ((v7_ordinal1 X0) \wedge (\neg v3_xxreal_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xxreal_0 X0) \quad (20)$$

Assume the following.

$$\forall X0.(v7_ordinal1 X0) \Rightarrow (v1_xreal_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(v1_card_1 X0) \Rightarrow (v3_ordinal1 X0) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k8_afinsq_1 X0)) \Rightarrow ((v5_ordinal1 X1) \wedge (v1_finset_1 X1)) \quad (23)$$

Theorem 1

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (k8_afinsq_1 X2)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\ & (k8_afinsq_1 X2)) \Rightarrow (\forall X5.(m1_subset_1 X5 (k1_zfmisc_1 (\\ & k8_afinsq_1 X2))) \Rightarrow (\forall X6.(l1_rewrite3 X6 X5) \Rightarrow (\neg(\neg k2_flang_1 \\ & X2 \in k10_xtuple_0 (k9_xtuple_0 (u1_rewrite3 X5 X6)))) \wedge ((r2_rewrite3 \\ & X2 X5 X6 X0 X3 X1 X4) \wedge (r1_xxreal_0 (k1_afinsq_1 X3) (k1_afinsq_1 \\ & X4)))))))))) \end{aligned}$$