

t42_rewrite3

(TMW7GPVde9mqdwUSnAgDLWe89y1Lfgb9kG1)

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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 $v2_struct_0 : \iota \Rightarrow o$ 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 $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_afinsq_1 : \iota \Rightarrow \iota$ be given. Let $r2_rewrite3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. (\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (k8_afinsq_1 X2)) \Rightarrow (\forall X4. (m1_subset_1 X4 \\
 & (k8_afinsq_1 X2)) \Rightarrow (\forall X5. (m1_subset_1 X5 (k1_zfmisc_1 (\\
 & k8_afinsq_1 X2))) \Rightarrow (\forall X6. (l1_rewrite3 X6 X5) \Rightarrow (\neg (\neg k2_flang_1 \\
 & X2 \in k10_xtuple_0 (k9_xtuple_0 (u1_rewrite3 X5 X6)))) \wedge ((r2_rewrite3 \\
 & X2 X5 X6 X0 X3 X1 X4) \wedge (r1_xxreal_0 (k1_afinsq_1 X3) (k1_afinsq_1 \\
 & X4))))))))) \\
 & \tag{1}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((m1_subset_1 \\
 & X1 (k1_zfmisc_1 (k8_afinsq_1 X0))) \wedge ((\neg v2_struct_0 X2) \wedge (l1_rewrite3 \\
 & X2 X1)))) \Rightarrow (m1_subset_1 (k1_rewrite3 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 \\
 & (k2_zfmisc_1 (u1_struct_0 X2) (k8_afinsq_1 X0)) (k2_zfmisc_1 \\
 & (u1_struct_0 X2) (k8_afinsq_1 X0)))))) \\
 & \tag{2}
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\
& \quad (k8_afinsq_1 X0))) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_rewrite3 \\
& \quad X2 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad (k2_zfmisc_1 (u1_struct_0 X2) (k8_afinsq_1 X0)) (k2_zfmisc_1 \\
& \quad (u1_struct_0 X2) (k8_afinsq_1 X0)))))) \Rightarrow ((X3 = k1_rewrite3 X0 X1 \\
& \quad X2) \Leftrightarrow (\forall X4.\forall X5.\forall X6.\forall X7.(k4_tarski \\
& \quad (k4_tarski X4 X5) (k4_tarski X6 X7) \in X3) \Leftrightarrow (r2_rewrite3 X0 X1 X2 X4 \\
& \quad X5 X6 X7))))))
\end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(\neg v1_xboole_0 X2) \Rightarrow (\forall X3. \\
& \quad (m1_subset_1 X3 (k8_afinsq_1 X2)) \Rightarrow (\forall X4.(m1_subset_1 X4 \\
& \quad (k8_afinsq_1 X2)) \Rightarrow (\forall X5.(m1_subset_1 X5 (k1_zfmisc_1 (\\
& \quad k8_afinsq_1 X2))) \Rightarrow (\forall X6.((\neg v2_struct_0 X6) \wedge (l1_rewrite3 \\
& \quad X6 X5)) \Rightarrow (\neg(\neg k2_flang_1 X2 \in k10_xtuple_0 (k9_xtuple_0 (u1_rewrite3 \\
& \quad X5 X6))) \wedge ((k4_tarski (k4_tarski X0 X3) (k4_tarski X1 X4) \in k1_rewrite3 \\
& \quad X2 X5 X6) \wedge (r1_xxreal_0 (k1_afinsq_1 X3) (k1_afinsq_1 X4))))))))))
\end{aligned}$$