

t1_quatern3 (TMdFbZFS- Guk2QWH8fRF8ysAfMoqBpxazBVu)

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Let $v1_quaterni : \iota \Rightarrow o$ be given. Let $k17_quaterni : \iota \Rightarrow \iota$ be given. Let $k27_quaterni : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_quaterni : \iota \Rightarrow \iota$ be given. Let $k19_quaterni : \iota \Rightarrow \iota$ be given. Let $k20_quaterni : \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(v1_quaterni X0) \Rightarrow (\forall X1.(v1_quaterni X1) \Rightarrow ((\\
 & \quad k17_quaterni (k27_quaterni X0 X1) = k9_real_1 (k9_real_1 (k9_real_1 \\
 & \quad (k8_real_1 (k17_quaterni X0) (k17_quaterni X1)) (k8_real_1 (k18_quaterni \\
 & \quad X0) (k18_quaterni X1))) (k8_real_1 (k19_quaterni X0) (k19_quaterni \\
 & \quad X1))) (k8_real_1 (k20_quaterni X0) (k20_quaterni X1))) \wedge ((k18_quaterni \\
 & \quad (k27_quaterni X0 X1) = k9_real_1 (k7_real_1 (k7_real_1 (k8_real_1 \\
 & \quad (k17_quaterni X0) (k18_quaterni X1)) (k8_real_1 (k18_quaterni \\
 & \quad X0) (k17_quaterni X1))) (k8_real_1 (k19_quaterni X0) (k20_quaterni \\
 & \quad X1))) (k8_real_1 (k20_quaterni X0) (k19_quaterni X1))) \wedge ((k19_quaterni \\
 & \quad (k27_quaterni X0 X1) = k9_real_1 (k7_real_1 (k7_real_1 (k8_real_1 \\
 & \quad (k17_quaterni X0) (k19_quaterni X1)) (k8_real_1 (k19_quaterni \\
 & \quad X0) (k17_quaterni X1))) (k8_real_1 (k20_quaterni X0) (k18_quaterni \\
 & \quad X1))) (k8_real_1 (k18_quaterni X0) (k20_quaterni X1))) \wedge (k20_quaterni \\
 & \quad (k27_quaterni X0 X1) = k9_real_1 (k7_real_1 (k7_real_1 (k8_real_1 \\
 & \quad (k17_quaterni X0) (k20_quaterni X1)) (k8_real_1 (k20_quaterni \\
 & \quad X0) (k17_quaterni X1))) (k8_real_1 (k18_quaterni X0) (k19_quaterni \\
 & \quad X1))) (k8_real_1 (k19_quaterni X0) (k18_quaterni X1))))))))) \\
 & \tag{1}
 \end{aligned}$$

Assume the following.

$$\forall X0.(v1_quaterni X0) \Rightarrow (m1_subset_1 (k20_quaterni X0) k1_numbers) \tag{2}$$

Assume the following.

$$\forall X0.(v1_quaterni X0) \Rightarrow (m1_subset_1 (k19_quaterni X0) k1_numbers) \tag{3}$$

Assume the following.

$$\forall X0.(v1_quaterni\ X0)\Rightarrow(m1_subset_1\ (k18_quaterni\ X0)\ k1_numbers) \quad (4)$$

Assume the following.

$$\forall X0.(v1_quaterni\ X0)\Rightarrow(m1_subset_1\ (k17_quaterni\ X0)\ k1_numbers) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1\ X0\ k1_numbers)\wedge(v1_xreal_0\ X1))\Rightarrow(k8_real_1\ X0\ X1 = k8_real_1\ X1\ X0) \quad (6)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k1_numbers)\Rightarrow(v1_xreal_0\ X0) \quad (7)$$

Theorem 1

$$\forall X0.(v1_quaterni\ X0)\Rightarrow(\forall X1.(v1_quaterni\ X1)\Rightarrow(k17_quaterni\ (k27_quaterni\ X0\ X1) = k17_quaterni\ (k27_quaterni\ X1\ X0)))$$