

t37_limfunc2

(TMQ5iBW9rTXpeU2B5txjFX5YtSA18NGJcV4)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_limfunc2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.(m1_subset_1 \\
 & \quad X1 k1_numbers) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 \\
 & \quad (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow ((r1_tarski \\
 & \quad (k2_rcomp_1 (k9_real_1 X1 X0) X1) (k1_relset_1 k1_numbers X2)) \Rightarrow \\
 & \quad ((r1_xxreal_0 X0 k6_numbers) \vee (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
 & \quad \quad (\neg(\neg r1_xxreal_0 X1 X3) \wedge (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow \\
 & \quad \quad \quad (\neg(\neg r1_xxreal_0 X4 X3) \wedge ((\neg r1_xxreal_0 X1 X4) \wedge (X4 \in k1_relset_1 \\
 & \quad \quad \quad \quad k1_numbers X2))))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_subset_1 X0 k1_numbers) \Rightarrow (\forall X1.((v1_funct_1 \\
& X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& k1_numbers k1_numbers)))) \Rightarrow (((r2_limfunc2 X1 X0) \wedge (\forall X3. \\
& (m1_subset_1 X3 k1_numbers) \Rightarrow (\neg(\neg r1_xreal_0 X0 X3) \wedge (\forall X4. \\
& (m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xreal_0 X4 X3) \wedge ((\neg r1_xreal_0 \\
& X0 X4) \wedge (X4 \in k1_relset_1 k1_numbers X2)))))) \Rightarrow ((\forall X3.(m1_subset_1 \\
& X3 k1_numbers) \Rightarrow (\neg(\neg r1_xreal_0 X3 k6_numbers) \wedge ((r1_tarski (\\
& k9_subset_1 k1_numbers (k1_relset_1 k1_numbers X2) (k2_rcomp_1 \\
& (k9_real_1 X0 X3) X0)) (k9_subset_1 k1_numbers (k1_relset_1 k1_numbers \\
& X1) (k2_rcomp_1 (k9_real_1 X0 X3) X0))) \wedge (\forall X4.(m1_subset_1 \\
& X4 k1_numbers) \Rightarrow ((X4 \in k9_subset_1 k1_numbers (k1_relset_1 k1_numbers \\
& X2) (k2_rcomp_1 (k9_real_1 X0 X3) X0)) \Rightarrow (r1_xreal_0 (k1_seq_1 \\
& X1 X4) (k1_seq_1 X2 X4)))))) \vee (r2_limfunc2 X2 X0))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1_tarski X0 X1) \wedge (r1_tarski X1 X2)) \Rightarrow (r1_tarski X0 X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski (k3_xboole_0 X0 X1) X0 \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow (k9_subset_1 X0 X1 X2 = k3_xboole_0 X1 X2) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k1_numbers) \wedge (v1_xreal_0 X1)) \Rightarrow (k9_real_1 X0 X1 = k6_xcmplx_0 X0 X1) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (k1_relset_1 X0 X1 = k9_xtuple_0 X1) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0) \wedge (v1_xreal_0 X1)) \Rightarrow (v1_xreal_0 (k6_xcmplx_0 X0 X1)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0)\wedge(v1_xxreal_0 X1))\Rightarrow(m1_subset_1 (k2_rcomp_1 X0 X1) (k1_zfmisc_1 k1_numbers)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(m1_subset_1 (k1_relset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (12)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0)\Rightarrow(v1_xxreal_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (14)$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(v1_xreal_0 X0) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_subset_1 X0 k1_numbers)\Rightarrow(\forall X1.((v1_funct_1 \\ & X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers))))\Rightarrow \\ & (\forall X2.((v1_funct_1 X2)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers))))\Rightarrow((r2_limfunc2 X1 X0)\Rightarrow((\forall X3. \\ & (m1_subset_1 X3 k1_numbers)\Rightarrow(\neg(\neg r1_xxreal_0 X3 k6_numbers)\wedge \\ & ((r1_tarski (k2_rcomp_1 (k9_real_1 X0 X3) X0) (k9_subset_1 k1_numbers \\ & (k1_relset_1 k1_numbers X2) (k1_relset_1 k1_numbers X1)))\wedge(\forall X4. \\ & (m1_subset_1 X4 k1_numbers)\Rightarrow((X4 \in k2_rcomp_1 (k9_real_1 X0 X3) \\ & X0)\Rightarrow(r1_xxreal_0 (k1_seq_1 X1 X4) (k1_seq_1 X2 X4))))))\vee(r2_limfunc2 \\ & X2 X0)))))) \end{aligned}$$