

t56_integr19

(TMY9Vcf1xHSX42FNfDau7AeT6CqYcBDYuQD)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_real_ns1 : \iota \Rightarrow \iota$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_integr18 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_integra5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_integr19 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_nfcont_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_integr18 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_ndiff_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_ndiff_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\
 & (v1_xreal_0 X2) \Rightarrow (\forall X3. ((\neg v1_xboole_0 X3) \wedge (m2_subset_1 \\
 & X3 k1_numbers k5_numbers)) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge (m1_subset_1 \\
 & X4 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 (k4_real_ns1 \\
 & X3)))))) \Rightarrow (\forall X5. ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
 & (k2_zfmisc_1 k1_numbers (u1_struct_0 (k4_real_ns1 X3)))))) \Rightarrow \\
 & (((r1_xxreal_0 X0 X1) \wedge ((r1_integr18 (k4_real_ns1 X3) (k3_integra5 \\
 & X0 X1) X5) \wedge ((v1_integr19 (k2_partfun1 k1_numbers (u1_struct_0 \\
 & (k4_real_ns1 X3)) X5 (k3_integra5 X0 X1)) (k4_real_ns1 X3) k1_numbers) \wedge \\
 & ((r1_tarski (k3_integra5 X0 X1) (k1_relset_1 k1_numbers X5)) \wedge \\
 & ((r1_tarski (k2_rcomp_1 X0 X1) (k1_relset_1 k1_numbers X4)) \wedge \\
 & (\forall X6.(v1_xreal_0 X6) \Rightarrow ((X6 \in k2_rcomp_1 X0 X1) \Rightarrow (k1_funct_1 \\
 & X4 X6 = k6_integr18 (k4_real_ns1 X3) X5 X0 X6))) \wedge ((X2 \in k2_rcomp_1 \\
 & X0 X1) \wedge (r1_nfcont_3 (k4_real_ns1 X3) X5 X2)))))) \Rightarrow ((r1_ndiff_3 \\
 & (k4_real_ns1 X3) X4 X2) \wedge (k1_ndiff_3 (k4_real_ns1 X3) X4 X2 = k7_partfun1 \\
 & (u1_struct_0 (k4_real_ns1 X3)) X5 X2))))))
 \end{aligned}
 \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m2_subset_1 X0 k1_numbers k5_numbers) \Rightarrow (\forall X1. \\
& (v1_xreal_0 X1) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow (\forall X3.((v1_funct_1 \\
& X3) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 \\
& (k4_real_ns1 X0)))))) \Rightarrow (\exists X4.((v1_funct_1 X4) \wedge (m1_subset_1 \\
& X4 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 (k4_real_ns1 \\
& X0)))))) \wedge ((r1_tarski (k2_rcomp_1 X1 X2) (k1_relset_1 k1_numbers \\
& X4)) \wedge (\forall X5.(v1_xreal_0 X5) \Rightarrow ((X5 \in k2_rcomp_1 X1 X2) \Rightarrow (k1_funct_1 \\
& X4 X5 = k6_integr18 (k4_real_ns1 X0) X3 X1 X5))))))))) \\
& \hspace{20em} (2)
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(v1_xreal_0 X1) \Rightarrow (\forall X2. \\
& (v1_xreal_0 X2) \Rightarrow (\forall X3.((\neg v1_xboole_0 X3) \wedge (m2_subset_1 \\
& X3 k1_numbers k5_numbers)) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge (m1_subset_1 \\
& X4 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 (k4_real_ns1 \\
& X3)))))) \Rightarrow (\neg (r1_xxreal_0 X0 X1) \wedge ((r1_integr18 (k4_real_ns1 X3) \\
& (k3_integra5 X0 X1) X4) \wedge ((v1_integr19 (k2_partfun1 k1_numbers \\
& (u1_struct_0 (k4_real_ns1 X3)) X4 (k3_integra5 X0 X1)) (k4_real_ns1 \\
& X3) k1_numbers) \wedge ((r1_tarski (k3_integra5 X0 X1) (k1_relset_1 \\
& k1_numbers X4)) \wedge ((X2 \in k2_rcomp_1 X0 X1) \wedge ((r1_nfcont_3 (k4_real_ns1 \\
& X3) X4 X2) \wedge (\forall X5.((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 \\
& (k2_zfmisc_1 k1_numbers (u1_struct_0 (k4_real_ns1 X3)))))) \Rightarrow \\
& (\neg (r1_tarski (k2_rcomp_1 X0 X1) (k1_relset_1 k1_numbers X5)) \wedge \\
& ((\forall X6.(v1_xreal_0 X6) \Rightarrow ((X6 \in k2_rcomp_1 X0 X1) \Rightarrow (k1_funct_1 \\
& X5 X6 = k6_integr18 (k4_real_ns1 X3) X4 X0 X6))) \wedge ((r1_ndiff_3 (k4_real_ns1 \\
& X3) X5 X2) \wedge (k1_ndiff_3 (k4_real_ns1 X3) X5 X2 = k7_partfun1 (u1_struct_0 \\
& (k4_real_ns1 X3)) X4 X2)))))))))))))
\end{aligned}$$