

t38_integr14 (TMcc- JaMa6K4pXEMiH7M24BqXXBn55WUerQ6)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_measure5 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_rcomp_1 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_sin_cos : \iota$ be given. Let $k16_sin_cos : \iota$ be given. Let $k5_square_1 : \iota \Rightarrow \iota$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_fdiff_9 : \iota$ be given. Let $v1_fcont_1 : \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_integra5 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k32_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_seq_4 : \iota \Rightarrow \iota$ be given. Let $k5_seq_4 : \iota \Rightarrow \iota$ be given. Let $r2_fdiff_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_fdiff_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_integra5 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_comseq_2 : \iota \Rightarrow o$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_fdiff_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v3_rcomp_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 k1_numbers))) \Rightarrow \\
& ((r1_tarski X0 (k1_relset_1 k1_numbers (k1_partfun1 k1_numbers \\
& k1_numbers k1_numbers k1_numbers k16_sin_cos k2_fdiff_9))) \Rightarrow \\
& ((r2_fdiff_1 (k32_valued_1 k1_numbers k1_numbers (k1_partfun1 \\
& k1_numbers k1_numbers k1_numbers k1_numbers k16_sin_cos k2_fdiff_9)) \\
& X0) \wedge (\forall X1.(m1_subset_1 X1 k1_numbers) \Rightarrow ((X1 \in X0) \Rightarrow (k1_seq_1 \\
& (k2_fdiff_1 (k32_valued_1 k1_numbers k1_numbers (k1_partfun1 \\
& k1_numbers k1_numbers k1_numbers k1_numbers k16_sin_cos k2_fdiff_9)) \\
& X0) X1 = k10_real_1 (k8_real_1 (k1_seq_1 k19_sin_cos X1) (k1_seq_1 \\
& k19_sin_cos (k1_seq_1 k16_sin_cos X1))) (k5_square_1 (k1_seq_1 \\
& k16_sin_cos (k1_seq_1 k16_sin_cos X1))))))))) \tag{1}
\end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge ((v2_measure5 X0) \wedge (m1_subset_1 \\ & X0 (k1_zfmisc_1 k1_numbers)))) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (((r1_tarski X0 X1) \wedge (r2_fdiff_1 X2 X1) \wedge (r1_integra5 X0 (k2_fdiff_1 \\ & X2 X1)) \wedge (v1_comseq_2 (k2_partfun1 k1_numbers k1_numbers (k2_fdiff_1 \\ & X2 X1) X0)))) \Rightarrow (k2_integra5 X0 (k2_fdiff_1 X2 X1) = k9_real_1 (k1_seq_1 \\ & X2 (k4_seq_4 X0) (k1_seq_1 X2 (k5_seq_4 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge ((v2_measure5 X0) \wedge (m1_subset_1 \\ & X0 (k1_zfmisc_1 k1_numbers)))) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (((r1_tarski X0 (k1_relset_1 k1_numbers X1)) \wedge (v1_fcont_1 (k2_partfun1 \\ & k1_numbers k1_numbers X1 X0))) \Rightarrow (r1_integra5 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge ((v2_measure5 X0) \wedge (m1_subset_1 \\ & X0 (k1_zfmisc_1 k1_numbers)))) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (((r1_tarski X0 (k1_relset_1 k1_numbers X1)) \wedge (v1_fcont_1 (k2_partfun1 \\ & k1_numbers k1_numbers X1 X0))) \Rightarrow (v1_comseq_2 (k2_partfun1 k1_numbers \\ & k1_numbers X1 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1_funct_1 X2) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun1 \\ & X0 X1 X2 X3 = k5_relat_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$v3_membered k1_numbers \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v3_membered X1) \wedge ((v1_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow ((v1_funct_1 \\ & (k32_valued_1 X0 X1 X2)) \wedge (m1_subset_1 (k32_valued_1 X0 X1 X2) (\\ & k1_zfmisc_1 (k2_zfmisc_1 X0 k1_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$(v1_funct_1 k2_fdiff_9) \wedge (m1_subset_1 k2_fdiff_9 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers))) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 \\ & (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow ((v1_funct_1 (k2_fdiff_1 \\ & X0 X1)) \wedge (m1_subset_1 (k2_fdiff_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((v1_funct_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X0 X1)))) \wedge ((v1_funct_1 X5) \wedge (m1_subset_1 X5 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 X3)))))) \Rightarrow ((v1_funct_1 (k1_partfun1 X0 X1 X2 X3 X4 X5)) \wedge (m1_subset_1 \\ & (k1_partfun1 X0 X1 X2 X3 X4 X5) (k1_zfmisc_1 (k2_zfmisc_1 X0 X3)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & (v1_funct_1 k16_sin_cos) \wedge ((v1_funct_2 k16_sin_cos k1_numbers \\ & k1_numbers) \wedge (m1_subset_1 k16_sin_cos (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\ & k1_numbers k1_numbers)))) \Rightarrow (\forall X1. (r2_fdiff_1 X0 X1) \Rightarrow (\forall X2. \\ & ((v1_funct_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers \\ & k1_numbers)))) \Rightarrow ((X2 = k2_fdiff_1 X0 X1) \Leftrightarrow ((k1_relset_1 k1_numbers \\ & X2 = X1) \wedge (\forall X3. (m1_subset_1 X3 k1_numbers) \Rightarrow ((X3 \in X1) \Rightarrow (k1_seq_1 \\ & X2 X3 = k1_fdiff_1 X0 X3)))))) \end{aligned} \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1_xboole_0 X0) \wedge ((v2_measure5 X0) \wedge (m1_subset_1 \\ & X0 (k1_zfmisc_1 k1_numbers)))) \Rightarrow (\forall X1. ((v1_funct_1 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers k1_numbers)))) \Rightarrow \\ & (\forall X2. ((v3_rcomp_1 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 k1_numbers)) \Rightarrow \\ & (((r1_tarski X0 X2) \wedge ((\forall X3. (m1_subset_1 X3 k1_numbers) \Rightarrow \\ & ((X3 \in X2) \Rightarrow (k1_seq_1 X1 X3 = k10_real_1 (k8_real_1 (k1_seq_1 k19_sin_cos \\ & X3) (k1_seq_1 k19_sin_cos (k1_seq_1 k16_sin_cos X3))) (k5_square_1 \\ & (k1_seq_1 k16_sin_cos (k1_seq_1 k16_sin_cos X3)))))) \wedge ((r1_tarski \\ & X2 (k1_relset_1 k1_numbers (k1_partfun1 k1_numbers k1_numbers \\ & k1_numbers k1_numbers k16_sin_cos k2_fdiff_9)) \wedge ((X2 = k1_relset_1 \\ & k1_numbers X1) \wedge (v1_fcont_1 (k2_partfun1 k1_numbers k1_numbers \\ & X1 X0)))))) \Rightarrow (k2_integra5 X0 X1 = k9_real_1 (k1_seq_1 (k32_valued_1 \\ & k1_numbers k1_numbers (k1_partfun1 k1_numbers k1_numbers k1_numbers \\ & k1_numbers k16_sin_cos k2_fdiff_9)) (k4_seq_4 X0)) (k1_seq_1 \\ & (k32_valued_1 k1_numbers k1_numbers (k1_partfun1 k1_numbers \\ & k1_numbers k1_numbers k1_numbers k16_sin_cos k2_fdiff_9)) (k5_seq_4 \\ & X0)))))) \end{aligned}$$