

t20_pdiff_5 (TM-
bjb6Ao4TaoRjW5XPDiZp4bZCR3nCxAqgQ)

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Let $m2_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k1_euclid : \iota \Rightarrow \iota$ be given. Let $np_3 : \iota$ 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 $r2_pdiff_5 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_pdiff_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np_2 : \iota$ be given. Let $k1_pdiff_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k11_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_pdiff_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_fdiff_1 : \iota \Rightarrow o$ be given. Let $v2_fdiff_1 : \iota \Rightarrow o$ be given. Let $k9_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_seq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_real_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1_funct_1 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad (k1_euclid np_3) k1_numbers)))) \Rightarrow (\forall X1.(m2_finseq_2 X1 \\
& \quad k1_numbers (k1_euclid np_3)) \Rightarrow ((r3_pdiff_1 np_3 np_2 X0 X1) \Leftrightarrow \\
& \quad (\exists X2.(m1_subset_1 X2 k1_numbers) \wedge (\exists X3.(m1_subset_1 \\
& \quad X3 k1_numbers) \wedge (\exists X4.(m1_subset_1 X4 k1_numbers) \wedge ((X1 = \\
& \quad k11_finseq_1 X2 X3 X4) \wedge (\exists X5.(m1_rcomp_1 X5 X3) \wedge ((r1_tarski \\
& \quad X5 (k1_relset_1 k1_numbers (k1_pdiff_2 np_3 np_2 X0 X1))) \wedge (\exists X6. \\
& \quad ((v1_funct_1 X6) \wedge ((v3_fdiff_1 X6) \wedge (m1_subset_1 X6 (k1_zfmisc_1 \\
& \quad (k2_zfmisc_1 k1_numbers k1_numbers)))))) \wedge (\exists X7.((v1_funct_1 \\
& \quad X7) \wedge ((v2_fdiff_1 X7) \wedge (m1_subset_1 X7 (k1_zfmisc_1 (k2_zfmisc_1 \\
& \quad k1_numbers k1_numbers)))))) \wedge (\forall X8.(m1_subset_1 X8 k1_numbers) \Rightarrow \\
& \quad ((X8 \in X5) \Rightarrow (k9_real_1 (k1_seq_1 (k1_pdiff_2 np_3 np_2 X0 X1) X8) \\
& \quad (k1_seq_1 (k1_pdiff_2 np_3 np_2 X0 X1) X3) = k7_real_1 (k1_seq_1 \\
& \quad X6 (k9_real_1 X8 X3)) (k1_seq_1 X7 (k9_real_1 X8 X3)))))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& ((v2_xxreal_0 np_3) \wedge (m2_subset_1 np_3 k1_numbers k5_numbers)) \wedge \\
& ((m1_subset_1 np_3 k5_numbers) \wedge (m1_subset_1 np_3 k1_numbers))
\end{aligned} \tag{2}$$

Assume the following.

$$\neg v1_xboole_0 \ np_3 \tag{3}$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 \ np_1) \wedge (m2_subset_1 \ np_1 \ k1_numbers \ k5_numbers)) \wedge \\ & ((m1_subset_1 \ np_1 \ k5_numbers) \wedge (m1_subset_1 \ np_1 \ k1_numbers)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_subset_1 \ X0 \ k5_numbers) \wedge \\ & (((\neg v1_xboole_0 \ X1) \wedge (m1_subset_1 \ X1 \ k5_numbers)) \wedge ((v1_funct_1 \\ & \ X2) \wedge (m1_subset_1 \ X2 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k1_euclid \ X1) \\ & k1_numbers)))))) \Rightarrow ((v1_funct_1 \ (k1_pdiff_3 \ X0 \ X1 \ X2)) \wedge ((v1_funct_2 \\ & (k1_pdiff_3 \ X0 \ X1 \ X2) \ (k1_euclid \ X1) \ k1_numbers) \wedge (m1_subset_1 \\ & (k1_pdiff_3 \ X0 \ X1 \ X2) \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (k1_euclid \ X1) \\ & k1_numbers)))))) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_funct_1 \ X0) \wedge (m1_subset_1 \ X0 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \\ & (k1_euclid \ np_3) \ k1_numbers)))) \Rightarrow (\forall X1. (m2_finseq_2 \ X1 \\ & k1_numbers \ (k1_euclid \ np_3)) \Rightarrow ((r2_pdiff_5 \ X0 \ X1) \Leftrightarrow (\exists X2. \\ & (m1_subset_1 \ X2 \ k1_numbers) \wedge (\exists X3. (m1_subset_1 \ X3 \ k1_numbers) \wedge \\ & (\exists X4. (m1_subset_1 \ X4 \ k1_numbers) \wedge ((X1 = k11_finseq_1 \ X2 \\ & X3 \ X4) \wedge (\exists X5. (m1_rcomp_1 \ X5 \ X3) \wedge ((r1_tarski \ X5 \ (k1_relset_1 \\ & k1_numbers \ (k1_pdiff_2 \ np_3 \ np_2 \ (k1_pdiff_3 \ np_1 \ np_3 \ X0) \\ & X1)))) \wedge (\exists X6. ((v1_funct_1 \ X6) \wedge ((v3_fdiff_1 \ X6) \wedge (m1_subset_1 \\ & X6 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ k1_numbers \ k1_numbers)))))) \wedge (\exists X7. \\ & ((v1_funct_1 \ X7) \wedge ((v2_fdiff_1 \ X7) \wedge (m1_subset_1 \ X7 \ (k1_zfmisc_1 \\ & (k2_zfmisc_1 \ k1_numbers \ k1_numbers)))))) \wedge (\forall X8. (m1_subset_1 \\ & X8 \ k1_numbers) \Rightarrow ((X8 \in X5) \Rightarrow (k9_real_1 \ (k1_seq_1 \ (k1_pdiff_2 \ np_3 \\ & np_2 \ (k1_pdiff_3 \ np_1 \ np_3 \ X0) \ X1) \ X8) \ (k1_seq_1 \ (k1_pdiff_2 \\ & np_3 \ np_2 \ (k1_pdiff_3 \ np_1 \ np_3 \ X0) \ X1) \ X3) = k7_real_1 \ (k1_seq_1 \\ & X6 \ (k9_real_1 \ X8 \ X3)) \ (k1_seq_1 \ X7 \ (k9_real_1 \ X8 \ X3)))))))))) \end{aligned} \tag{6}$$

Theorem 1

$$\begin{aligned} & \forall X0. (m2_finseq_2 \ X0 \ k1_numbers \ (k1_euclid \ np_3)) \Rightarrow (\forall X1. \\ & ((v1_funct_1 \ X1) \wedge (m1_subset_1 \ X1 \ (k1_zfmisc_1 \ (k2_zfmisc_1 \ (\\ & k1_euclid \ np_3) \ k1_numbers)))) \Rightarrow ((r2_pdiff_5 \ X1 \ X0) \Leftrightarrow (r3_pdiff_1 \\ & np_3 \ np_2 \ (k1_pdiff_3 \ np_1 \ np_3 \ X1) \ X0)) \end{aligned}$$