

## t54\_pdiff\_9

(TMP1FRhr13kKmLFMPUPWeENTbST3M1NYD3s)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_euclid : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_pdiff\_7 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_pdiff\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_pdiff\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_pdiff\_6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_real\_ns1 : \iota \Rightarrow \iota$  be given. Let  $v3\_nfcont\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
 & \quad (\forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
 & \quad (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X3. ((v1\_funct\_1 \\
 & \quad X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) \\
 & \quad (k1\_euclid np\_1)))))) \Rightarrow ((r2\_relset\_1 (k1\_euclid X0) (k1\_euclid \\
 & \quad np\_1) (k3\_pdiff\_1 X0 X2) X3) \Rightarrow (((r1\_tarski X1 (k1\_relset\_1 (k1\_euclid \\
 & \quad X0) X2)) \wedge (r2\_pdiff\_9 X1 X0 X2)) \Leftrightarrow (r1\_pdiff\_6 X1 np\_1 X0 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. (m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
 & \quad ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
 & \quad k1\_euclid X0) k1\_numbers)))) \Rightarrow (k1\_relset\_1 (k1\_euclid X0) (k3\_pdiff\_1 \\
 & \quad X0 X1) = k1\_relset\_1 (k1\_euclid X0) X1))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X0 k5\_numbers)) \Rightarrow \\
& (\forall X1.((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 k5\_numbers)) \Rightarrow \\
& (\forall X2.((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& (k1\_euclid X0) (k1\_euclid X1)))))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (k1\_zfmisc\_1 (k1\_euclid X0))) \Rightarrow ((\exists X4.(m1\_subset\_1 X4 ( \\
& k1\_zfmisc\_1 (u1\_struct\_0 (k4\_real\_ns1 X0)))) \wedge ((X3 = X4) \wedge (v3\_nfcont\_1 \\
& X4 (k4\_real\_ns1 X0)))) \Rightarrow ((r1\_pdiff\_6 X3 X1 X0 X2) \Leftrightarrow ((r1\_tarski X3 \\
& (k1\_relset\_1 (k1\_euclid X0) X2)) \wedge (\forall X4.(m2\_finseq\_2 X4 ( \\
& k1\_numbers (k1\_euclid X0)) \Rightarrow ((X4 \in X3) \Rightarrow (r1\_pdiff\_1 X0 X1 X2 X4))))))))))
\end{aligned} \tag{3}$$

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.

$$\neg v1\_xboole\_0 np\_1 \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{7}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{8}$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \tag{9}$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \tag{10}$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((v7\_ordinal1 X0) \wedge ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 \\
& X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))))) \Rightarrow \\
& ((v1\_funct\_1 (k3\_pdiff\_1 X0 X1)) \wedge (m1\_subset\_1 (k3\_pdiff\_1 X0 \\
& X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) (k1\_euclid np\_1))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X0 k5\_numbers)) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_euclid X0))) \Rightarrow (( \\ & v1\_pdiff\_7 X1 X0) \Leftrightarrow (\exists X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 \\ & (k4\_real\_ns1 X0)))) \wedge ((X2 = X1) \wedge (v3\_nfcont\_1 X2 (k4\_real\_ns1 X0)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X0 k5\_numbers)) \Rightarrow \\ & (\forall X1.((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X2.(m2\_finseq\_2 X2 k1\_numbers \\ & (k1\_euclid X0)) \Rightarrow ((r1\_pdiff\_7 X0 X1 X2) \Leftrightarrow (r1\_pdiff\_1 X0 np\_1 (k3\_pdiff\_1 \\ & X0 X1) X2)))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (15)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_euclid X0))) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k1\_euclid X0) k1\_numbers)))) \Rightarrow (((r1\_tarski X1 (k1\_relset\_1 (k1\_euclid \\ & X0) X2)) \wedge (v1\_pdiff\_7 X1 X0)) \Rightarrow ((r2\_pdiff\_9 X1 X0 X2) \Leftrightarrow (\forall X3. \\ & (m2\_finseq\_2 X3 k1\_numbers (k1\_euclid X0)) \Rightarrow ((X3 \in X1) \Rightarrow (r1\_pdiff\_7 \\ & X0 X2 X3)))))) \end{aligned}$$