

## t47\_pdiff\_9

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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  $v1\_funct\_1 : \iota \Rightarrow o$  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  $k1\_euclid : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_pdiff\_9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k26\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_integr15 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r4\_pdiff\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
 & ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
 & k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X2.(v1\_xreal\_0 X2) \Rightarrow (r2\_relset\_1 \\
 & (k1\_euclid X0) (k1\_euclid np\_1) (k3\_pdiff\_1 X0 (k26\_valued\_1 \\
 & (k1\_euclid X0) k1\_numbers X1 X2)) (k9\_integr15 np\_1 X2 (k1\_euclid \\
 & X0) (k3\_pdiff\_1 X0 X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
 & (\forall X1.\forall X2.((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
 & (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X3.((v1\_funct\_1 \\
 & X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) \\
 & (k1\_euclid np\_1)))))) \Rightarrow ((r2\_relset\_1 (k1\_euclid X0) (k1\_euclid \\
 & np\_1) (k3\_pdiff\_1 X0 X2) X3) \Rightarrow (((r1\_tarski X1 (k1\_relset\_1 (k1\_euclid \\
 & X0) X2)) \wedge (r1\_pdiff\_9 X0 X1 X2)) \Leftrightarrow (r4\_pdiff\_7 X0 np\_1 X3 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
& (\forall X1.((\neg v1\_xboole\_0 X1) \wedge (m2\_subset\_1 X1 k1\_numbers k5\_numbers)) \Rightarrow \\
& \quad (\forall X2.\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\forall X4. \\
& \quad \quad ((v1\_funct\_1 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
& \quad \quad \quad k1\_euclid X0) (k1\_euclid X1)))))) \Rightarrow (\forall X5.((v1\_funct\_1 X5) \wedge \\
& \quad (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) (k1\_euclid \\
& \quad X1)))))) \Rightarrow ((r4\_pdiff\_7 X0 X1 X4 X2) \Rightarrow (r4\_pdiff\_7 X0 X1 (k9\_integr15 \\
& \quad \quad X1 X3 (k1\_euclid X0) X4 X2))))))
\end{aligned} \tag{3}$$

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.

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

Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\exists X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1))) \wedge ((v1\_xboole\_0 X2) \wedge ((v1\_relat\_1 X2) \wedge (( \\
& \quad v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1))))
\end{aligned} \tag{9}$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \tag{10}$$

Assume the following.

$$v6\_membered k4\_ordinal1 \tag{11}$$

Assume the following.

$$v3\_membered\ k1\_numbers \quad (12)$$

Assume the following.

$$\neg v1\_xboole\_0\ k1\_numbers \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v7\_ordinal1\ X0)\wedge \\ & ((v1\_xreal\_0\ X1)\wedge((v1\_funct\_1\ X3)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1\ X2\ (k1\_euclid\ X0))))))\Rightarrow((v1\_funct\_1\ (k9\_integr15 \\ & X0\ X1\ X2\ X3))\wedge(m1\_subset\_1\ (k9\_integr15\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1\ X2\ (k1\_euclid\ X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$m1\_subset\_1\ k5\_numbers\ (k1\_zfmisc\_1\ k1\_numbers) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v7\_ordinal1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(m1\_subset\_1 \\ & X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ X0)\ k1\_numbers))))\Rightarrow \\ & ((v1\_funct\_1\ (k3\_pdfiff\_1\ X0\ X1))\wedge(m1\_subset\_1\ (k3\_pdfiff\_1\ X0 \\ & X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ X0)\ (k1\_euclid\ np\_1)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((v3\_membered\ X1)\wedge \\ & (((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ & X0\ X1))))\wedge(v1\_xreal\_0\ X3))\Rightarrow((v1\_funct\_1\ (k26\_valued\_1\ X0\ X1 \\ & X2\ X3))\wedge(m1\_subset\_1\ (k26\_valued\_1\ X0\ X1\ X2\ X3)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ & X0\ k1\_numbers)))))) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(v1\_funct\_1\ X0) \quad (18)$$

Assume the following.

$$\forall X0.(v6\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow (v7\_ordinal1\ X1)) \quad (19)$$

Assume the following.

$$\forall X0.(v3\_membered\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ X0)\Rightarrow (v1\_xreal\_0\ X1)) \quad (20)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\ (\forall X1. \forall X2. ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X3. (m1\_subset\_1 \\ X3 k1\_numbers) \Rightarrow (((r1\_tarski X1 (k1\_relset\_1 (k1\_euclid X0) X2)) \wedge \\ (r1\_pdiff\_9 X0 X1 X2)) \Rightarrow (r1\_pdiff\_9 X0 X1 (k26\_valued\_1 (k1\_euclid \\ X0) k1\_numbers X2 X3)))))) \end{aligned}$$