

## t10\_pdiff\_4

(TMZQxmeTcy48qYwWJLHoFsfQnWhRsK4ujHj)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  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  $r1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $m1\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & \quad (k1\_euclid np\_3) k1\_numbers)))) \Rightarrow (\forall X1.(m2\_finseq\_2 X1 \\ & \quad k1\_numbers (k1\_euclid np\_3)) \Rightarrow ((\exists X2.(m1\_subset\_1 X2 k1\_numbers) \wedge \\ & \quad (\exists X3.(m1\_subset\_1 X3 k1\_numbers) \wedge (\exists X4.(m1\_subset\_1 \\ & \quad X4 k1\_numbers) \wedge ((X1 = k11\_finseq\_1 X2 X3 X4) \wedge (r1\_fdiff\_1 (k1\_pdiff\_2 \\ & \quad np\_3 np\_1 X0 X1) X2)))))) \Leftrightarrow (r3\_pdiff\_1 np\_3 np\_1 X0 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (k11\_finseq\_1 X0 X1 X2 = k11\_finseq\_1 X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\ & \quad (X2 = X5))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_3) \wedge (m2\_subset\_1 np\_3 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_3 k5\_numbers) \wedge (m1\_subset\_1 np\_3 k1\_numbers)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_2 X1 X0)\Rightarrow(\forall X2.(m2\_finseq\_2 X2 X0 X1)\Leftrightarrow(m1\_subset\_1 X2 X1)) \quad (5)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X0 \\ & k5\_numbers)\wedge((m1\_subset\_1 X1 k5\_numbers)\wedge((v1\_funct\_1 X2)\wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers))))\wedge \\ & (m1\_subset\_1 X3 (k1\_euclid X0))))\Rightarrow((v1\_funct\_1 (k1\_pdiff\_2 \\ & X0 X1 X2 X3))\wedge(m1\_subset\_1 (k1\_pdiff\_2 X0 X1 X2 X3) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(m1\_finseq\_2 (k1\_euclid X0) k1\_numbers) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 X0)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers))))\Rightarrow(\forall X1.(v1\_xreal\_0 X1)\Rightarrow((r1\_fdiff\_1 \\ & X0 X1)\Leftrightarrow(\exists X2.(m1\_rcomp\_1 X2 X1)\wedge((r1\_tarski X2 (k1\_relset\_1 \\ & k1\_numbers X0))\wedge(\exists X3.((v1\_funct\_1 X3)\wedge((v3\_fdiff\_1 X3)\wedge \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers))))\wedge \\ & (\exists X4.((v1\_funct\_1 X4)\wedge((v2\_fdiff\_1 X4)\wedge(m1\_subset\_1 \\ & X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers))))\wedge(\forall X5. \\ & (m1\_subset\_1 X5 k1\_numbers)\Rightarrow((X5 \in X2)\Rightarrow(k9\_real\_1 (k1\_seq\_1 X0 \\ & X5) (k1\_seq\_1 X0 X1) = k7\_real\_1 (k1\_seq\_1 X3 (k9\_real\_1 X5 X1)) ( \\ & k1\_seq\_1 X4 (k9\_real\_1 X5 X1)))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (10)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k1\_numbers) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow (\forall X3. \\ & (m2\_finseq\_2 X3 k1\_numbers (k1\_euclid np\_3)) \Rightarrow (\forall X4.(( \\ & v1\_funct\_1 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid \\ & np\_3) k1\_numbers)))) \Rightarrow (\neg(X3 = k11\_finseq\_1 X0 X1 X2) \wedge ((r3\_pdiff\_1 \\ & np\_3 np\_1 X4 X3) \wedge (\forall X5.(m1\_rcomp\_1 X5 X0) \Rightarrow (\neg(r1\_tarski \\ & X5 (k1\_relset\_1 k1\_numbers (k1\_pdiff\_2 np\_3 np\_1 X4 X3))) \wedge (\exists X6. \\ & ((v1\_funct\_1 X6) \wedge (v3\_fdiff\_1 X6) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))))) \wedge (\exists X7.((v1\_funct\_1 \\ & X7) \wedge ((v2\_fdiff\_1 X7) \wedge (m1\_subset\_1 X7 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers)))))) \wedge (\forall X8.(m1\_subset\_1 X8 k1\_numbers) \Rightarrow \\ & ((X8 \in X5) \Rightarrow (k9\_real\_1 (k1\_seq\_1 (k1\_pdiff\_2 np\_3 np\_1 X4 X3) X8) \\ & (k1\_seq\_1 (k1\_pdiff\_2 np\_3 np\_1 X4 X3) X0) = k7\_real\_1 (k1\_seq\_1 \\ & X6 (k9\_real\_1 X8 X0)) (k1\_seq\_1 X7 (k9\_real\_1 X8 X0)))))))))) \end{aligned}$$