

t33\_pdiff.3 (TMWs-  
DBj9iQfie3F74wSvNFhKwMBS8Eg4AUm)

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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  $np\_2 : \iota$  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  $r1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k20\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

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

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid np\_2)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k1\_euclid np\_2) k1\_numbers)))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid np\_2) k1\_numbers)))) \Rightarrow \\ & (((r3\_pdiff\_1 np\_2 np\_1 X1 X0) \wedge (r3\_pdiff\_1 np\_2 np\_1 X2 X0)) \Rightarrow \\ & (r3\_pdiff\_1 np\_2 np\_1 (k20\_valued\_1 (k1\_euclid np\_2) k1\_numbers \\ & k1\_numbers X1 X2) X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \end{aligned} \quad (3)$$

Assume the following.

$$\neg v1\_xboole\_0 np\_2 \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X0 k5\_numbers)\wedge \\
& (((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X1 k5\_numbers))\wedge((v1\_funct\_1 \\
& X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X1) \\
& k1\_numbers))))))\Rightarrow((v1\_funct\_1 (k1\_pdiff\_3 X0 X1 X2))\wedge((v1\_funct\_2 \\
& (k1\_pdiff\_3 X0 X1 X2) (k1\_euclid X1) k1\_numbers)\wedge(m1\_subset\_1 \\
& (k1\_pdiff\_3 X0 X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X1) \\
& k1\_numbers))))))
\end{aligned} \tag{6}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid np\_2))\Rightarrow(\forall X1. \\
& ((v1\_funct\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
& k1\_euclid np\_2) k1\_numbers))))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge \\
& (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid np\_2) k1\_numbers))))\Rightarrow \\
& (((r1\_pdiff\_3 X1 X0)\wedge(r1\_pdiff\_3 X2 X0))\Rightarrow(r3\_pdiff\_1 np\_2 np\_1 \\
& (k20\_valued\_1 (k1\_euclid np\_2) k1\_numbers k1\_numbers (k1\_pdiff\_3 \\
& np\_1 np\_2 X1) (k1\_pdiff\_3 np\_1 np\_2 X2)) X0))))
\end{aligned}$$