

## t48\_pdiff\_5

(TMJTeR9jhhqrDQ99LkpDuo39ukkRBP7nKxy)

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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  $r3\_pdiff\_5 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k11\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_pdiff\_5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid np\_3)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k1\_euclid np\_3) k1\_numbers)))) \Rightarrow ((r3\_pdiff\_5 X1 X0) \Rightarrow (k3\_pdiff\_5 \\ & X1 X0 = k11\_pdiff\_1 np\_3 np\_3 (k1\_pdiff\_3 np\_1 np\_3 X1) X0))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\ & (\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k1\_euclid X0) k1\_numbers)))) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge ( \\ & m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))) \Rightarrow \\ & (\forall X4.(m2\_finseq\_2 X4 k1\_numbers (k1\_euclid X0)) \Rightarrow (((r3\_pdiff\_1 \\ & X0 X1 X2 X4) \wedge (r3\_pdiff\_1 X0 X1 X3 X4)) \Rightarrow ((r3\_pdiff\_1 X0 X1 (k3\_valued\_1 \\ & (k1\_euclid X0) k1\_numbers k1\_numbers X2 X3) X4) \wedge (k11\_pdiff\_1 X0 \\ & X1 (k3\_valued\_1 (k1\_euclid X0) k1\_numbers k1\_numbers X2 X3) X4 = \\ & k7\_real\_1 (k11\_pdiff\_1 X0 X1 X2 X4) (k11\_pdiff\_1 X0 X1 X3 X4))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid np\_3)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\ & k1\_euclid np\_3) k1\_numbers)))) \Rightarrow ((r3\_pdiff\_5 X1 X0) \Leftrightarrow (r3\_pdiff\_1 \\ & np\_3 np\_3 (k1\_pdiff\_3 np\_1 np\_3 X1) X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_3) \wedge (m2\_subset\_1 \ np\_3 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_3 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_3 \ k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_3 \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1\_subset\_1 \ X0 \ k5\_numbers) \wedge \\ & (((\neg v1\_xboole\_0 \ X1) \wedge (m1\_subset\_1 \ X1 \ k5\_numbers)) \wedge ((v1\_funct\_1 \\ & \ X2) \wedge (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k1\_euclid \ X1) \\ & k1\_numbers)))))) \Rightarrow ((v1\_funct\_1 \ (k1\_pdiff\_3 \ X0 \ X1 \ X2)) \wedge ((v1\_funct\_2 \\ & (k1\_pdiff\_3 \ X0 \ X1 \ X2) \ (k1\_euclid \ X1) \ k1\_numbers) \wedge (m1\_subset\_1 \\ & (k1\_pdiff\_3 \ X0 \ X1 \ X2) \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k1\_euclid \ X1) \\ & k1\_numbers)))))) \end{aligned} \quad (7)$$

### Theorem 1

$$\begin{aligned} & \forall X0. (m2\_finseq\_2 \ X0 \ k1\_numbers \ (k1\_euclid \ np\_3)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 \ X1) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ ( \\ & k1\_euclid \ np\_3) \ k1\_numbers)))) \Rightarrow (\forall X2. ((v1\_funct\_1 \ X2) \wedge \\ & (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k1\_euclid \ np\_3) \ k1\_numbers)))) \Rightarrow \\ & (((r3\_pdiff\_5 \ X1 \ X0) \wedge (r3\_pdiff\_5 \ X2 \ X0)) \Rightarrow ((r3\_pdiff\_1 \ np\_3 \ np\_3 \\ & (k3\_valued\_1 \ (k1\_euclid \ np\_3) \ k1\_numbers \ k1\_numbers \ (k1\_pdiff\_3 \\ & np\_1 \ np\_3 \ X1) \ (k1\_pdiff\_3 \ np\_1 \ np\_3 \ X2)) \ X0) \wedge (k11\_pdiff\_1 \ np\_3 \\ & np\_3 \ (k3\_valued\_1 \ (k1\_euclid \ np\_3) \ k1\_numbers \ k1\_numbers \ (k1\_pdiff\_3 \\ & np\_1 \ np\_3 \ X1) \ (k1\_pdiff\_3 \ np\_1 \ np\_3 \ X2)) \ X0 = k7\_real\_1 \ (k3\_pdiff\_5 \\ & X1 \ X0) \ (k3\_pdiff\_5 \ X2 \ X0)))))) \end{aligned}$$