

t31\_pdiff\_3 (TMN-  
FspotrMT7yWgS7AQkSJzCVs2c9P4cF8m)

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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  $np\_2 : \iota$  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  $r3\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k26\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned}
 & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (m2\_subset\_1 X0 k1\_numbers k5\_numbers)) \Rightarrow \\
 & \quad (\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (\forall X2. \\
 & \quad (m1\_subset\_1 X2 k1\_numbers) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge (m1\_subset\_1 \\
 & \quad X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k1\_euclid X0) k1\_numbers)))) \Rightarrow ( \\
 & \quad \forall X4.(m2\_finseq\_2 X4 k1\_numbers (k1\_euclid X0)) \Rightarrow ((r3\_pdiff\_1 \\
 & X0 X1 X3 X4) \Rightarrow ((r3\_pdiff\_1 X0 X1 (k26\_valued\_1 (k1\_euclid X0) k1\_numbers \\
 & X3 X2) X4) \wedge (k11\_pdiff\_1 X0 X1 (k26\_valued\_1 (k1\_euclid X0) k1\_numbers \\
 & X3 X2) X4 = k8\_real\_1 X2 (k11\_pdiff\_1 X0 X1 X3 X4))))))))) \quad (1)
 \end{aligned}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(m2\_finseq\_2 X0 k1\_numbers (k1\_euclid np\_2)) \Rightarrow (\forall X1. \\
 & ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 ( \\
 & k1\_euclid np\_2) k1\_numbers)))) \Rightarrow ((r3\_pdiff\_3 X1 X0) \Rightarrow (k4\_pdiff\_3 \\
 & X1 X0 = k11\_pdiff\_1 np\_2 np\_1 (k1\_pdiff\_3 np\_2 np\_2 X1) X0))) \quad (2)
 \end{aligned}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_2 \quad (5)$$

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

$$\begin{aligned} & \forall X0. (m1\_subset\_1 \ X0 \ k1\_numbers) \Rightarrow (\forall X1. (m2\_finseq\_2 \\ & \ X1 \ k1\_numbers \ (k1\_euclid \ np\_2)) \Rightarrow (\forall X2. ((v1\_funct\_1 \ X2) \wedge \\ & (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k1\_euclid \ np\_2) \ k1\_numbers)))))) \Rightarrow \\ & ((r3\_pdiff\_3 \ X2 \ X1) \Rightarrow ((r3\_pdiff\_1 \ np\_2 \ np\_1 \ (k26\_valued\_1 \ (k1\_euclid \\ & np\_2) \ k1\_numbers \ (k1\_pdiff\_3 \ np\_2 \ np\_2 \ X2) \ X0) \ X1) \wedge (k11\_pdiff\_1 \\ & np\_2 \ np\_1 \ (k26\_valued\_1 \ (k1\_euclid \ np\_2) \ k1\_numbers \ (k1\_pdiff\_3 \\ & np\_2 \ np\_2 \ X2) \ X0) \ X1 = k8\_real\_1 \ X0 \ (k4\_pdiff\_3 \ X2 \ X1)))))) \end{aligned}$$