t19_pdiff_3 (TM-cAWbZ41vE2Sgmo7NGBcGC8U7asuHJod4n)

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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 $np\_\_2 : \iota$ be given. Let $k1\_numbers : \iota$ be given. Let $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_rcomp\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $r3\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k1\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_numbers : \iota$ be given. Let $v1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_numbers : \iota$ be given. Let $v3\_funct\_1 : \iota \Rightarrow o$ be given. Let $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $k3\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_comseq\_2 : \iota \Rightarrow o$ be given. Let $k20\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k37\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k47\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_pdiff\_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_seq\_2 : \iota \Rightarrow \iota$ be given. Let $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k11\_pdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k1\_seq\_2 : \iota \Rightarrow \iota$ 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 $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers) \Rightarrow (\forall X1.((v2\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ k5\_numbers\ k1\_numbers) \wedge ((v1\_fdiff\_1\ X1\ k6\_numbers) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))) \Rightarrow (\forall X2.((v1\_funct\_1\ X2) \wedge ((v3\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))) \Rightarrow ((k2\_relset\_1\ k1\_numbers\ X2 = k1\_tarski\ X0) \Rightarrow ((v2\_comseq\_2\ X2) \wedge ((k2\_seq\_2\ X2\ X2 = X0) \wedge ((v2\_comseq\_2\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X1\ X2)) \wedge (k2\_seq\_2\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X1\ X2) = X0)))))))) \tag{1}$$

Assume the following.

$$(k1\_relset\_1\ (k1\_euclid\ np\_\_2)\ (k1\_pdiff\_1\ np\_\_2\ np\_\_2) = k1\_euclid\ np\_\_2) \wedge ((k2\_relset\_1\ k1\_numbers\ (k1\_pdiff\_1\ np\_\_2\ np\_\_2) = k1\_numbers) \wedge (\forall X0.(m1\_subset\_1\ X0\ k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ k1\_numbers) \Rightarrow (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_2\ np\_\_2)\ (k10\_finseq\_1\ X0\ X1) = X1))))) \tag{2}$$

Assume the following.

$$(k1\_relset\_1\ (k1\_euclid\ np\_\_2)\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2) = k1\_euclid\ np\_\_2) \wedge ((k2\_relset\_1\ k1\_numbers\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2) = k1\_numbers) \wedge (\forall X0.(m1\_subset\_1\ X0\ k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ k1\_numbers) \Rightarrow (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2)\ (k10\_finseq\_1\ X0\ X1) = X0)))) \tag{3}$$

Assume the following.

$$\forall X0.((v1\_funct\_1\ X0) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ np\_\_2)\ k1\_numbers)))) \Rightarrow (\forall X1.(m2\_finseq\_2\ X1\ k1\_numbers\ (k1\_euclid\ np\_\_2)) \Rightarrow (\forall X2.(m1\_rcomp\_1\ X2\ (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2)\ X1)) \Rightarrow (((r3\_pdiff\_1\ np\_\_2\ np\_\_1\ X0\ X1) \wedge (r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ X0\ X1)))) \Rightarrow (\forall X3.((v2\_relat\_1\ X3) \wedge ((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers) \wedge ((v1\_fdiff\_1\ X3\ k6\_numbers) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v3\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ k5\_numbers\ k1\_numbers) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))) \Rightarrow (((k2\_relset\_1\ k1\_numbers\ X4 = k1\_tarski\ (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2)\ X1)) \wedge (r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4))\ X2)) \Rightarrow ((v2\_comseq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X3)\ (k47\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4)\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ X0\ X1))\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ X0\ X1))))) \wedge (k11\_pdiff\_1\ np\_\_2\ np\_\_1\ X0\ X1 = k2\_seq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3)\ (k47\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4)\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ X0\ X1))\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ X0\ X1)))))))))))) \tag{4}$$

Assume the following.

$$\forall X0.(m2\_finseq\_2\ X0\ k1\_numbers\ (k1\_euclid\ np\_\_2))\Rightarrow(\forall X1.\ ((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ np\_\_2)\ k1\_numbers))))\Rightarrow((r3\_pdiff\_3\ X1\ X0)\Rightarrow(k4\_pdiff\_3\ X1\ X0 = k11\_pdiff\_1\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X1)\ X0))) \tag{5}$$

Assume the following.

$$\forall X0.(m2\_finseq\_2\ X0\ k1\_numbers\ (k1\_euclid\ np\_\_2))\Rightarrow(\forall X1.\ ((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ np\_\_2)\ k1\_numbers))))\Rightarrow((r3\_pdiff\_3\ X1\ X0)\Leftrightarrow(r3\_pdiff\_1\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X1)\ X0))) \tag{6}$$

Assume the following.

$$((v2\_xxreal\_0\ np\_\_2)\wedge(m2\_subset\_1\ np\_\_2\ k1\_numbers\ k5\_numbers))\wedge((m1\_subset\_1\ np\_\_2\ k5\_numbers)\wedge(m1\_subset\_1\ np\_\_2\ k1\_numbers)) \tag{7}$$

Assume the following.

$$\neg v1\_xboole\_0\ np\_\_2 \tag{8}$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \tag{9}$$

Assume the following.

$$\forall X0.((v1\_funct\_1\ X0)\wedge((v1\_funct\_2\ X0\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))\Rightarrow(k2\_seq\_2\ X0 = k1\_seq\_2\ X0) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_subset\_1\ X0\ k5\_numbers)\wedge(((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ k5\_numbers))\wedge((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ X1)\ k1\_numbers))))))\Rightarrow((v1\_funct\_1\ (k1\_pdiff\_3\ X0\ X1\ X2))\wedge((v1\_funct\_2\ (k1\_pdiff\_3\ X0\ X1\ X2)\ (k1\_euclid\ X1)\ k1\_numbers)\wedge(m1\_subset\_1\ (k1\_pdiff\_3\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ X1)\ k1\_numbers))))) \tag{11}$$

Assume the following.

$$\forall X0.((v1\_funct\_1\ X0)\wedge(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ np\_\_2)\ k1\_numbers))))\Rightarrow(\forall X1.(m2\_finseq\_2\ X1\ k1\_numbers\ (k1\_euclid\ np\_\_2))\Rightarrow((r3\_pdiff\_3\ X0\ X1)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ k1\_numbers)\wedge(\exists X3.(m1\_subset\_1\ X3\ k1\_numbers)\wedge((X1 = k10\_finseq\_1\ X2\ X3)\wedge(\exists X4.(m1\_rcomp\_1\ X4\ X2)\wedge((r1\_tarski\ X4\ (k1\_relset\_1\ k1\_numbers\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1)))\wedge(\exists X5.((v1\_funct\_1\ X5)\wedge((v3\_fdiff\_1\ X5)\wedge(m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)))))\wedge(\exists X6.((v1\_funct\_1\ X6)\wedge((v2\_fdiff\_1\ X6)\wedge(m1\_subset\_1\ X6\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)))))\wedge(\forall X7.(m1\_subset\_1\ X7\ k1\_numbers)\Rightarrow((X7\in X4)\Rightarrow(k9\_real\_1\ (k1\_seq\_1\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1)\ X7)\ (k1\_seq\_1\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1)\ X2) = k7\_real\_1\ (k1\_seq\_1\ X5\ (k9\_real\_1\ X7\ X2))\ (k1\_seq\_1\ X6\ (k9\_real\_1\ X7\ X2))))))))))))))) \tag{12}$$

Theorem 1

$$\forall X0.((v1\_funct\_1\ X0)\wedge(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k1\_euclid\ np\_\_2)\ k1\_numbers))))\Rightarrow(\forall X1.(m2\_finseq\_2\ X1\ k1\_numbers\ (k1\_euclid\ np\_\_2))\Rightarrow(\forall X2.(m1\_rcomp\_1\ X2\ (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2)\ X1))\Rightarrow(((r3\_pdiff\_3\ X0\ X1)\wedge(r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1))))\Rightarrow(\forall X3.((v2\_relat\_1\ X3)\wedge((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers)\wedge((v1\_fdiff\_1\ X3\ k6\_numbers)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))\Rightarrow(\forall X4.((v1\_funct\_1\ X4)\wedge((v3\_funct\_1\ X4)\wedge((v1\_funct\_2\ X4\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))\Rightarrow(((k2\_relset\_1\ k1\_numbers\ X4 = k1\_tarski\ (k1\_seq\_1\ (k1\_pdiff\_1\ np\_\_1\ np\_\_2)\ X1))\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4))\ X2))\Rightarrow((v2\_comseq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X3)\ (k47\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4)\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1))\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1)))))\wedge(k4\_pdiff\_3\ X0\ X1 = k2\_seq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X3)\ (k47\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4)\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1))\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ (k1\_pdiff\_2\ np\_\_2\ np\_\_1\ (k1\_pdiff\_3\ np\_\_2\ np\_\_2\ X0)\ X1))))))))))))$$