t12_fdiff_2 (TMGfer8o5Dx47wC4x3SmENs1r9S6n1VFs5t)

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Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_numbers : \iota$ 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 $r1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v2\_relat\_1 : \iota \Rightarrow o$ 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 $k2\_seq\_2 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers) \Rightarrow (\forall X1.((v1\_funct\_1\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)))) \Rightarrow (\neg(\exists X2.(m1\_rcomp\_1\ X2\ X0) \wedge (r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ X1))) \wedge (\forall X2.((v2\_relat\_1\ X2) \wedge ((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers) \wedge ((v1\_fdiff\_1\ X2\ k6\_numbers) \wedge (m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))) \Rightarrow (\forall X3.((v1\_funct\_1\ X3) \wedge ((v3\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))) \Rightarrow (\neg(k2\_relset\_1\ k1\_numbers\ X3 = k1\_tarski\ X0) \wedge ((r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X2\ X3))\ (k1\_relset\_1\ k1\_numbers\ X1)) \wedge (r1\_tarski\ (k1\_tarski\ X0)\ (k1\_relset\_1\ k1\_numbers\ X1))))))))) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(\forall X1.((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers))))\Rightarrow((r1\_fdiff\_1\ X1\ X0)\Leftrightarrow((\exists X2.(m1\_rcomp\_1\ X2\ X0)\wedge(r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ X1)))\wedge(\forall X2.((v2\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers)\wedge((v1\_fdiff\_1\ X2\ k6\_numbers)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v3\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))\Rightarrow(((k2\_relset\_1\ k1\_numbers\ X3 = k1\_tarski\ X0)\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X2\ X3))\ (k1\_relset\_1\ k1\_numbers\ X1)))\Rightarrow(v2\_comseq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X2)\ (k47\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X2\ X3)\ X1)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X1)))))))))) \tag{2}$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(\forall X1.((v1\_funct\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers))))\Rightarrow((\forall X2.((v2\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers)\wedge((v1\_fdiff\_1\ X2\ k6\_numbers)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v3\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))\Rightarrow(((k2\_relset\_1\ k1\_numbers\ X3 = k1\_tarski\ X0)\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X2\ X3))\ (k1\_relset\_1\ k1\_numbers\ X1)))\Rightarrow(v2\_comseq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X2)\ (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\ X2\ X3)\ X1)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X1)))))))\Rightarrow((\forall X2.(m1\_rcomp\_1\ X2\ X0)\Rightarrow(\neg r1\_tarski\ X2\ (k1\_relset\_1\ k1\_numbers\ X1)))\vee((r1\_fdiff\_1\ X1\ X0)\wedge(\forall X2.((v2\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ k5\_numbers\ k1\_numbers)\wedge((v1\_fdiff\_1\ X2\ k6\_numbers)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers)))))))\Rightarrow(\forall X3.((v1\_funct\_1\ X3)\wedge((v3\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ k5\_numbers\ k1\_numbers)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k1\_numbers))))))\Rightarrow(((k2\_relset\_1\ k1\_numbers\ X3 = k1\_tarski\ X0)\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X2\ X3))\ (k1\_relset\_1\ k1\_numbers\ X1)))\Rightarrow(k1\_fdiff\_1\ X1\ X0 = k2\_seq\_2\ (k20\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ (k37\_valued\_1\ k5\_numbers\ k1\_numbers\ X2)\ (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\ X2\ X3)\ X1)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X1))))))))))) \tag{3}$$

Theorem 1

$$\forall X0.(m1\_subset\_1\ X0\ k1\_numbers)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ k1\_numbers)\Rightarrow(\forall X2.((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers))))\Rightarrow((((r1\_fdiff\_1\ X2\ X0)\wedge(k1\_fdiff\_1\ X2\ X0 = X1))\Rightarrow((\exists X3.(m1\_rcomp\_1\ X3\ X0)\wedge(r1\_tarski\ X3\ (k1\_relset\_1\ k1\_numbers\ X2)))\wedge(\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\ X0)\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4))\ (k1\_relset\_1\ k1\_numbers\ 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)\ X2)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ X2))))\wedge(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)\ X2)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ X2))) = X1)))))))\wedge((\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\ X0)\wedge(r1\_tarski\ (k2\_relset\_1\ k1\_numbers\ (k3\_valued\_1\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X3\ X4))\ (k1\_relset\_1\ k1\_numbers\ 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)\ X2)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ X2))))\wedge(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)\ X2)\ (k8\_funct\_2\ k5\_numbers\ k1\_numbers\ k1\_numbers\ X4\ X2))) = X1)))))\Rightarrow((\forall X3.(m1\_rcomp\_1\ X3\ X0)\Rightarrow(\neg r1\_tarski\ X3\ (k1\_relset\_1\ k1\_numbers\ X2)))\vee((r1\_fdiff\_1\ X2\ X0)\wedge(k1\_fdiff\_1\ X2\ X0 = X1)))))))$$