t27_pencil_1 (TMXYpcUC3UMQSePJHdqZafxvphfv2eqzcJg)

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Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13\_pencil\_1 : \iota \Rightarrow o$ be given. Let $v16\_pencil\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_zfmisc\_1 : \iota \Rightarrow o$ be given. Let $k2\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_pencil\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_1 : \iota$ be given. Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ X0)))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ X0) \Rightarrow (\forall X3.(\neg v1\_zfmisc\_1\ X3) \Rightarrow (\neg v13\_pencil\_1\ (k2\_funct\_7\ X1\ X2\ X3))))) \tag{1}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge (v1\_funct\_1\ X0)) \Rightarrow (\forall X1.\forall X2.\forall X3.(X2 \neq X3) \Rightarrow (k1\_funct\_1\ (k2\_funct\_7\ X0\ X2\ X1)\ X3 = k1\_funct\_1\ X0\ X3)) \tag{2}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge ((v1\_partfun1\ X1\ X0) \wedge ((\neg v13\_pencil\_1\ X1) \wedge (v16\_pencil\_1\ X1\ X0)))))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ X0) \Rightarrow ((X2 \neq k3\_pencil\_1\ X0\ X1) \Rightarrow (v3\_card\_1\ (k1\_funct\_1\ X1\ X2)\ np\_\_1)))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ X0) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ X0)))) \Rightarrow ((v1\_relat\_1\ (k2\_funct\_7\ X1\ X2\ X3)) \wedge ((v4\_relat\_1\ (k2\_funct\_7\ X1\ X2\ X3)\ X0) \wedge ((v1\_funct\_1\ (k2\_funct\_7\ X1\ X2\ X3)) \wedge (v1\_partfun1\ (k2\_funct\_7\ X1\ X2\ X3)\ X0)))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge((v1\_partfun1\ X1\ X0)\wedge((\neg v13\_pencil\_1\ X1)\wedge(v16\_pencil\_1\ X1\ X0)))))))\Rightarrow(m1\_subset\_1\ (k3\_pencil\_1\ X0\ X1)\ X0) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow((v1\_relat\_1\ (k2\_funct\_7\ X0\ X1\ X2))\wedge(v1\_funct\_1\ (k2\_funct\_7\ X0\ X1\ X2))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ X0))))\Rightarrow((v16\_pencil\_1\ X1\ X0)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ X0)\wedge(\forall X3.(m1\_subset\_1\ X3\ X0)\Rightarrow((X2\neq X3)\Rightarrow(v3\_card\_1\ (k1\_funct\_1\ X1\ X3)\ np\_\_1))))) \tag{7}$$

Theorem 1

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge((v1\_partfun1\ X1\ X0)\wedge((\neg v13\_pencil\_1\ X1)\wedge(v16\_pencil\_1\ X1\ X0))))))\Rightarrow(\forall X2.(\neg v1\_zfmisc\_1\ X2)\Rightarrow((v16\_pencil\_1\ (k2\_funct\_7\ X1\ (k3\_pencil\_1\ X0\ X1)\ X2)\ X0)\wedge(\neg v13\_pencil\_1\ (k2\_funct\_7\ X1\ (k3\_pencil\_1\ X0\ X1)\ X2)))))$$