t23_facirc_2 (TMJru-UPHbj1FuVKurGsR7jt66awQTtkDDLX)

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Let $k3\_msafree2 : \iota \Rightarrow \iota$ be given. Let $k19\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_facirc\_1 : \iota$ be given. Let $k9\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_enumset1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_facirc\_1 : \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Let $k17\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_2 : \iota$ be given. Let $k6\_margrel1 : \iota$ 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 $k8\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_circcomb : \iota \Rightarrow o$ be given. Let $v2\_circcomb : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $k2\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v3\_circcomb : \iota \Rightarrow o$ be given. Let $k14\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_circcomb : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_facirc\_1 : \iota$ be given. Let $k11\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1))))) \Rightarrow (k3\_msafree2\ (k8\_facirc\_1\ X0\ X1\ X2\ X3) = k2\_tarski\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ X3)\ (k9\_facirc\_1\ X0\ X1\ X2\ X3)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k2\_xboole\_0\ (k2\_xboole\_0\ X0\ X1)\ X2 = k2\_xboole\_0\ X0\ (k2\_xboole\_0\ X1\ X2) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v1\_circcomb\ X0)\wedge((v2\_circcomb\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v1\_circcomb\ X1)\wedge((v2\_circcomb\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(k3\_msafree2\ (k2\_circcomb\ X0\ X1) = k2\_xboole\_0\ (k3\_msafree2\ X0)\ (k3\_msafree2\ X1)))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k3\_msafree2\ (k15\_facirc\_1\ X0\ X1\ X2) = k2\_xboole\_0\ (k1\_enumset1\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X1\ X2)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X2\ X0)\ k3\_facirc\_1))\ (k1\_tarski\ (k17\_facirc\_1\ X0\ X1\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1\ X3)\wedge((v1\_funct\_2\ X3\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1)\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1)))))\Rightarrow((\neg v2\_struct\_0\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge((\neg v11\_struct\_0\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge((v1\_msualg\_1\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge((v1\_circcomb\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge((v2\_circcomb\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge((v3\_circcomb\ (k8\_facirc\_1\ X0\ X1\ X2\ X3))\wedge(l1\_msualg\_1\ (k8\_facirc\_1\ X0\ X1\ X2\ X3)))))))) \tag{5}$$

Assume the following.

$$(v1\_funct\_1\ k1\_facirc\_1)\wedge((v1\_funct\_2\ k1\_facirc\_1\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1)\wedge(m1\_subset\_1\ k1\_facirc\_1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_finseq\_2\ np\_\_2\ k6\_margrel1)\ k6\_margrel1)))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(\neg v2\_struct\_0\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge((\neg v11\_struct\_0\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge((v1\_msualg\_1\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge((v1\_circcomb\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge((v2\_circcomb\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge((v3\_circcomb\ (k15\_facirc\_1\ X0\ X1\ X2))\wedge(l1\_msualg\_1\ (k15\_facirc\_1\ X0\ X1\ X2))))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k19\_facirc\_1\ X0\ X1\ X2 = k2\_circcomb\ (k8\_facirc\_1\ X0\ X1\ X2\ k1\_facirc\_1)\ (k15\_facirc\_1\ X0\ X1\ X2) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k15\_facirc\_1\ X0\ X1\ X2 = k2\_circcomb\ (k14\_facirc\_1\ X0\ X1\ X2)\ (k5\_circcomb\ k4\_facirc\_1\ (k11\_finseq\_1\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X1\ X2)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X2\ X0)\ k3\_facirc\_1))) \tag{9}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.k3\_msafree2\ (k19\_facirc\_1\ X0\ X1\ X2) = k2\_xboole\_0\ (k2\_xboole\_0\ (k2\_tarski\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k1\_facirc\_1)\ (k9\_facirc\_1\ X0\ X1\ X2\ k1\_facirc\_1))\ (k1\_enumset1\ (k4\_tarski\ (k10\_finseq\_1\ X0\ X1)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X1\ X2)\ k3\_facirc\_1)\ (k4\_tarski\ (k10\_finseq\_1\ X2\ X0)\ k3\_facirc\_1)))\ (k1\_tarski\ (k17\_facirc\_1\ X0\ X1\ X2))$$