t48_circtrm1 (TMaJ5P3udzPKY5nA2jSizW4ReLW9tb49tHa)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_msafree2 : \iota \Rightarrow o$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msafree2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4\_circtrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_circtrm1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_card\_3 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_circuit2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7\_ordinal1 : \iota \Rightarrow o$ be given. Let $k5\_facirc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12\_card\_3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r8\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ 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 $k1\_numbers : \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $k4\_ordinal1 : \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v2\_msafree2\ X0) \wedge (l1\_msualg\_1\ X0)))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge ((\neg v11\_struct\_0\ X1) \wedge ((v2\_msafree2\ X1) \wedge (l1\_msualg\_1\ X1)))) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge (v1\_funct\_1\ X2)) \Rightarrow (\forall X3.((v1\_relat\_1\ X3) \wedge (v1\_funct\_1\ X3)) \Rightarrow (\forall X4.((v4\_msualg\_1\ X4\ X0) \wedge ((v4\_msafree2\ X4\ X0) \wedge (l3\_msualg\_1\ X4\ X0))) \Rightarrow (\forall X5.((v4\_msualg\_1\ X5\ X1) \wedge ((v4\_msafree2\ X5\ X1) \wedge (l3\_msualg\_1\ X5\ X1))) \Rightarrow (((r4\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5) \wedge (r3\_circtrm1\ X0\ X1\ X2)) \Rightarrow (\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X5))) \Rightarrow (\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X4))) \Rightarrow ((X7 = k3\_relat\_1\ X2\ X6) \Rightarrow (k6\_circuit2\ X0\ X4\ X7 = k3\_relat\_1\ X2\ (k6\_circuit2\ X1\ X5\ X6)))))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow((v1\_circuit2\ X2\ X0\ X1)\Rightarrow(\forall X3.(v7\_ordinal1\ X3)\Rightarrow(k5\_facirc\_1\ X0\ X1\ X2\ X3 = X2)))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow(k5\_facirc\_1\ X0\ X1\ X2\ np\_\_1 = k6\_circuit2\ X0\ X1\ X2))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow((\forall X4.k1\_funct\_1\ (k12\_card\_3\ (u3\_msualg\_1\ X0\ X1)\ X4)\ X2 = k1\_funct\_1\ (k12\_card\_3\ (u3\_msualg\_1\ X0\ X1)\ X4)\ X3)\Rightarrow(r8\_pboole\ (u1\_struct\_0\ X0)\ X2\ X3))))) \tag{4}$$

Assume the following.

$$((v2\_xxreal\_0\ np\_\_1)\wedge(m2\_subset\_1\ np\_\_1\ k1\_numbers\ k5\_numbers))\wedge((m1\_subset\_1\ np\_\_1\ k5\_numbers)\wedge(m1\_subset\_1\ np\_\_1\ k1\_numbers)) \tag{5}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((v4\_msualg\_1\ X1\ X0)\wedge((v4\_msafree2\ X1\ X0)\wedge(l3\_msualg\_1\ X1\ X0)))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X1)))\Rightarrow((v1\_circuit2\ X2\ X0\ X1)\Leftrightarrow(r8\_pboole\ (u1\_struct\_0\ X0)\ X2\ (k6\_circuit2\ X0\ X1\ X2))))) \tag{7}$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k4\_ordinal1)\Rightarrow(v7\_ordinal1\ X0) \tag{8}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v2\_msafree2\ X0)\wedge(l1\_msualg\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((\neg v11\_struct\_0\ X1)\wedge((v2\_msafree2\ X1)\wedge(l1\_msualg\_1\ X1))))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge(v1\_funct\_1\ X3))\Rightarrow(\forall X4.((v4\_msualg\_1\ X4\ X0)\wedge((v4\_msafree2\ X4\ X0)\wedge(l3\_msualg\_1\ X4\ X0)))\Rightarrow(\forall X5.((v4\_msualg\_1\ X5\ X1)\wedge((v4\_msafree2\ X5\ X1)\wedge(l3\_msualg\_1\ X5\ X1)))\Rightarrow(((r4\_circtrm1\ X0\ X1\ X2\ X3\ X4\ X5)\wedge(r3\_circtrm1\ X0\ X1\ X2))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k4\_card\_3\ (u3\_msualg\_1\ X1\ X5)))\Rightarrow(\forall X7.(m1\_subset\_1\ X7\ (k4\_card\_3\ (u3\_msualg\_1\ X0\ X4)))\Rightarrow(((X7 = k3\_relat\_1\ X2\ X6)\wedge(v1\_circuit2\ X6\ X1\ X5))\Rightarrow(v1\_circuit2\ X7\ X0\ X4)))))))))$$