t34_gcd_1 (TMRu2282MkLqLxnNenZJnLFXYGDECPQXcT3)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v6\_struct\_0 : \iota \Rightarrow o$ be given. Let $v13\_algstr\_0 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v5\_group\_1 : \iota \Rightarrow o$ be given. Let $v4\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $v5\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $v2\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v3\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v4\_rlvect\_1 : \iota \Rightarrow o$ be given. Let $v1\_vectsp\_2 : \iota \Rightarrow o$ be given. Let $v3\_gcd\_1 : \iota \Rightarrow o$ be given. Let $l6\_algstr\_0 : \iota \Rightarrow o$ be given. Let $m2\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $r4\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l4\_algstr\_0 : \iota \Rightarrow o$ be given. Let $r1\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $r2\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l5\_algstr\_0 : \iota \Rightarrow o$ be given. Let $l4\_struct\_0 : \iota \Rightarrow o$ be given. Let $v6\_vectsp\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge (l4\_algstr\_0\ X0))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (((r1\_gcd\_1\ X0\ X1\ X2) \wedge (r1\_gcd\_1\ X0\ X2\ X3)) \Rightarrow (r1\_gcd\_1\ X0\ X1\ X3))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v6\_struct\_0\ X0) \wedge ((v13\_algstr\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v5\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge ((v5\_vectsp\_1\ X0) \wedge ((v2\_rlvect\_1\ X0) \wedge ((v3\_rlvect\_1\ X0) \wedge ((v4\_rlvect\_1\ X0) \wedge ((v1\_vectsp\_2\ X0) \wedge ((v3\_gcd\_1\ X0) \wedge (l6\_algstr\_0\ X0))))))))))) \Rightarrow (\forall X1.(m2\_gcd\_1\ X1\ X0) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (k5\_gcd\_1\ X0\ X1\ X2\ X3 = k5\_gcd\_1\ X0\ X1\ X3\ X2)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge(l4\_algstr\_0\ X0)))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow((r4\_gcd\_1\ X0\ X1\ X2)\Rightarrow(r4\_gcd\_1\ X0\ X2\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge(l4\_algstr\_0\ X0)))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow((r4\_gcd\_1\ X0\ X1\ X2)\Leftrightarrow(r3\_gcd\_1\ X0\ X1\ X2)) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge((v3\_vectsp\_1\ X0)\wedge(l4\_algstr\_0\ X0)))\wedge((m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))))\Rightarrow((r2\_gcd\_1\ X0\ X1\ X2)\Leftrightarrow(r1\_gcd\_1\ X0\ X1\ X2)) \tag{5}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0\ X0)\Rightarrow((l2\_algstr\_0\ X0)\wedge(l5\_algstr\_0\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.(l5\_algstr\_0\ X0)\Rightarrow((l4\_algstr\_0\ X0)\wedge(l4\_struct\_0\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v3\_gcd\_1\ X0)\wedge(l4\_algstr\_0\ X0)))))\wedge((m2\_gcd\_1\ X1\ X0)\wedge((m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)))))\Rightarrow(m1\_subset\_1\ (k5\_gcd\_1\ X0\ X1\ X2\ X3)\ (u1\_struct\_0\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l4\_algstr\_0\ X0))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow((r3\_gcd\_1\ X0\ X1\ X2)\Leftrightarrow((r1\_gcd\_1\ X0\ X1\ X2)\wedge(r1\_gcd\_1\ X0\ X2\ X1))))) \tag{9}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v3\_gcd\_1\ X0)\wedge(l4\_algstr\_0\ X0)))))\Rightarrow(\forall X1.(m2\_gcd\_1\ X1\ X0)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow((X4 = k5\_gcd\_1\ X0\ X1\ X2\ X3)\Leftrightarrow((X4 \in X1)\wedge((r2\_gcd\_1\ X0\ X4\ X2)\wedge((r2\_gcd\_1\ X0\ X4\ X3)\wedge(\forall X5.(m1\_subset\_1\ X5\ (u1\_struct\_0\ X0))\Rightarrow(((r2\_gcd\_1\ X0\ X5\ X2)\wedge(r2\_gcd\_1\ X0\ X5\ X3))\Rightarrow(r2\_gcd\_1\ X0\ X5\ X4)))))))))) \tag{10}$$

Assume the following.

$$\forall X0.(l4\_algstr\_0\ X0)\Rightarrow(((\neg v2\_struct\_0\ X0)\wedge(v4\_vectsp\_1\ X0))\Rightarrow((\neg v2\_struct\_0\ X0)\wedge((v3\_vectsp\_1\ X0)\wedge(v6\_vectsp\_1\ X0)))) \tag{11}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v6\_struct\_0\ X0)\wedge((v13\_algstr\_0\ X0)\wedge((v3\_group\_1\ X0)\wedge((v5\_group\_1\ X0)\wedge((v4\_vectsp\_1\ X0)\wedge((v5\_vectsp\_1\ X0)\wedge((v2\_rlvect\_1\ X0)\wedge((v3\_rlvect\_1\ X0)\wedge((v4\_rlvect\_1\ X0)\wedge((v1\_vectsp\_2\ X0)\wedge((v3\_gcd\_1\ X0)\wedge(l6\_algstr\_0\ X0))))))))))))\Rightarrow(\forall X1.(m2\_gcd\_1\ X1\ X0)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow((r4\_gcd\_1\ X0\ X3\ X4)\Rightarrow((r4\_gcd\_1\ X0\ (k5\_gcd\_1\ X0\ X1\ X2\ X3)\ (k5\_gcd\_1\ X0\ X1\ X2\ X4))\wedge(r4\_gcd\_1\ X0\ (k5\_gcd\_1\ X0\ X1\ X3\ X2)\ (k5\_gcd\_1\ X0\ X1\ X4\ X2))))))))$$