

## t5\_gcd\_1

(TMS9ZwVMofUpgxpaFiWF1tY1FNwzCYrPfkY)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $l4\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l3\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l3\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(l4\_algstr\_0 X0) \Rightarrow ((l3\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((l3\_algstr\_0 X0) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (m1\_subset\_1 (k6\_algstr\_0 X0 X1 X2) (u1\_struct\_0 X0)) \quad (2)$$

Assume the following.

$$\forall X0.(l3\_algstr\_0 X0) \Rightarrow ((v3\_group\_1 X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (k6\_algstr\_0 X0 X1 X2) X3 = k6\_algstr\_0 X0 X1 (k6\_algstr\_0 X0 X2 X3)))))) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l3\_algstr\_0 X0)) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_gcd\_1 X0 X1 X2) \Leftrightarrow (\exists X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge (X2 = k6\_algstr\_0 X0 X1 X3)))))) \quad (4)$$

### Theorem 1

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_group\_1 X0) \wedge (l4\_algstr\_0 X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_gcd\_1 X0 X1 X2) \Rightarrow (r1\_gcd\_1 X0 (k6\_algstr\_0 X0 X3 X1) (k6\_algstr\_0 X0 X3 X2))))))$$