

# t42\_rmod\_3 (TM- LAbhg4ht1HQSiYet6ywVoZMUdB6oW6uWy)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  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  $l6\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_rmod\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rmod\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_struct\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $g1\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_algstr\_0 : \iota \Rightarrow \iota$  be given. Let  $u2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $u1\_vectsp\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\
& (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge (l1\_vectsp\_2 X1 X0)))))))))) \Rightarrow (\forall X2. (m1\_rmod\_2 X2 X0 X1) \Rightarrow (\forall X3. \\
& (m1\_rmod\_2 X3 X0 X1) \Rightarrow ((k1\_rmod\_3 X0 X1 X2 X3 = g1\_vectsp\_2 X0 (u1\_struct\_0 X1) (u1\_algstr\_0 X1) (u2\_struct\_0 X1) (u1\_vectsp\_2 X0 X1)) \Leftrightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u1\_struct\_0 X1)) \Rightarrow (\exists X5. (m1\_subset\_1 X5 (u1\_struct\_0 X1)) \wedge (\exists X6. (m1\_subset\_1 X6 (u1\_struct\_0 X1)) \wedge \\
& ((r1\_struct\_0 X2 X5) \wedge ((r1\_struct\_0 X3 X6) \wedge (X4 = k3\_rlvect\_1 X1 X5 X6))))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \tag{2}$$

Assume the following.

$$\forall X0. (l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \tag{3}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1\_struct\_0 X0) \wedge (l1\_vectsp\_2 X1 X0)) \Rightarrow \\ & ((v2\_vectsp\_2 X1 X0) \Rightarrow (X1 = g1\_vectsp\_2 X0 (u1\_struct\_0 X1) (u1\_algstr\_0 \\ & \quad X1) (u2\_struct\_0 X1) (u1\_vectsp\_2 X0 X1))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_group\_1 \\ & \quad X0) \wedge ((v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge \\ & \quad ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\ & \quad X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v2\_vectsp\_2 X1 X0) \wedge \\ & \quad ((v4\_vectsp\_2 X1 X0) \wedge (l1\_vectsp\_2 X1 X0)))))))))) \Rightarrow (\forall X2. \\ & (m1\_rmod\_2 X2 X0 X1) \Rightarrow (\forall X3.(m1\_rmod\_2 X3 X0 X1) \Rightarrow ((k1\_rmod\_3 \\ & \quad X0 X1 X2 X3 = X1) \Leftrightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X1)) \Rightarrow \\ & \quad (\exists X5.(m1\_subset\_1 X5 (u1\_struct\_0 X1)) \wedge (\exists X6.(m1\_subset\_1 \\ & \quad X6 (u1\_struct\_0 X1)) \wedge ((r1\_struct\_0 X2 X5) \wedge ((r1\_struct\_0 X3 X6) \wedge \\ & \quad (X4 = k3\_rlvect\_1 X1 X5 X6)))))))))) \end{aligned}$$