

## t20\_rmod\_4

(TMHSu8KjexaJh3FAgdXNQkcUNvYRDJtGRpi)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  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  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v5\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m2\_rmod\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_rmod\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $m1\_rmod\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_rmod\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. r1\_tarski \ k1\_xboole\_0 \ X0 \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge \\ & ((v2\_rlvect\_1 \ X0) \wedge ((v3\_rlvect\_1 \ X0) \wedge ((v4\_rlvect\_1 \ X0) \wedge ((v3\_group\_1 \\ & X0) \wedge ((v4\_vectsp\_1 \ X0) \wedge ((v5\_vectsp\_1 \ X0) \wedge (l6\_algstr\_0 \ X0)))))))))) \wedge \\ & ((\neg v2\_struct\_0 \ X1) \wedge ((v13\_algstr\_0 \ X1) \wedge ((v2\_rlvect\_1 \ X1) \wedge (( \\ & v3\_rlvect\_1 \ X1) \wedge ((v4\_rlvect\_1 \ X1) \wedge ((v4\_vectsp\_2 \ X1 \ X0) \wedge (l1\_vectsp\_2 \\ & X1 \ X0)))))))))) \Rightarrow (m1\_rmod\_4 \ (k3\_rmod\_4 \ X0 \ X1) \ X0 \ X1) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 \ X0) \wedge ((v13\_algstr\_0 \ X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 \ X0) \wedge ((v4\_rlvect\_1 \ X0) \wedge ((v3\_group\_1 \ X0) \wedge ( \\ & v4\_vectsp\_1 \ X0) \wedge ((v5\_vectsp\_1 \ X0) \wedge (l6\_algstr\_0 \ X0)))))))))) \Rightarrow \\ & (\forall X1. ((\neg v2\_struct\_0 \ X1) \wedge ((v13\_algstr\_0 \ X1) \wedge ((v2\_rlvect\_1 \\ & X1) \wedge ((v3\_rlvect\_1 \ X1) \wedge ((v4\_rlvect\_1 \ X1) \wedge ((v4\_vectsp\_2 \ X1 \ X0) \wedge \\ & (l1\_vectsp\_2 \ X1 \ X0)))))))))) \Rightarrow (\forall X2. (m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & u1\_struct\_0 \ X1))) \Rightarrow (\forall X3. (m1\_rmod\_4 \ X3 \ X0 \ X1) \Rightarrow ((m2\_rmod\_4 \\ & X3 \ X0 \ X1 \ X2) \Leftrightarrow (r1\_tarski \ (k2\_rmod\_4 \ X0 \ X1 \ X3) \ X2)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ( \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
& (l1\_vectsp\_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1\_rmod\_4 X2 X0 X1) \Rightarrow (( \\
& X2 = k3\_rmod\_4 X0 X1) \Leftrightarrow (k2\_rmod\_4 X0 X1 X2 = k1\_xboole\_0)))
\end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_group\_1 X0) \wedge ( \\
& (v4\_vectsp\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge (l6\_algstr\_0 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v4\_vectsp\_2 X1 X0) \wedge \\
& (l1\_vectsp\_2 X1 X0)))))))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X1))) \Rightarrow (m2\_rmod\_4 (k3\_rmod\_4 X0 X1) X0 X1 X2))
\end{aligned}$$