

## t15\_ratfunc1

(TMWxMVUj2KZCJf5Gn2GetWDTzvKSCs5GsAU)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_group\_1 : \iota \Rightarrow o$  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  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_algseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_ratfunc1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_polynom5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_vfunct\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_polynom3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k2\_normsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v1\_vectsp\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v1\_group\_1 \\
 & X0) \wedge ((v2\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge \\
 & ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0))))))) \Rightarrow (\forall X1. ((v1\_funct\_1 \\
 & X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 \\
 & X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers ( \\
 & u1\_struct\_0 X0)))))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\
 & X2 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 X2 X0) \wedge (m1\_subset\_1 \\
 & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow \\
 & (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_ratfunc1 \\
 & X0 X1 X2 X3) \Rightarrow (r1\_polynom5 X0 (k8\_polynom3 X0 X1 X2) X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v1\_group\_1 \\ & X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge \\ & ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0))))))) \Rightarrow (\forall X1.((v1\_funct\_1 \\ & X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 \\ & X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers ( \\ & u1\_struct\_0 X0))))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \Rightarrow ((r1\_polynom5 X0 X1 X2) \Rightarrow (r1\_polynom5 X0 (k5\_vfunct\_1 k5\_numbers \\ & X0 X1) X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge (l2\_algstr\_0 X0))) \wedge (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X0)))))) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0))))))) \Rightarrow (k8\_polynom3 \\ & X0 X1 X2 = k2\_normsp\_1 X0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v4\_rlvect\_1 \\ & X0) \wedge (l2\_algstr\_0 X0))) \wedge (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \wedge ((v1\_funct\_1 \\ & X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 \\ & X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers ( \\ & u1\_struct\_0 X0))))))))) \Rightarrow ((v1\_funct\_1 (k2\_normsp\_1 X0 X1 X2)) \wedge \\ & ((v1\_funct\_2 (k2\_normsp\_1 X0 X1 X2) k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (v1\_algseq\_1 (k2\_normsp\_1 X0 X1 X2) X0))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. (l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge (l2\_algstr\_0 X0))) \wedge (((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers (u1\_struct\_0 X0)))))) \wedge ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 \\ & X2 k5\_numbers (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0))))))) \Rightarrow ((v1\_funct\_1 \\ & (k8\_polynom3 X0 X1 X2)) \wedge ((v1\_funct\_2 (k8\_polynom3 X0 X1 X2) k5\_numbers \\ & (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 (k8\_polynom3 X0 X1 X2) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0) \Rightarrow (((\neg v2\_struct\_0 X0) \wedge (v5\_vectsp\_1 X0)) \Rightarrow ((\neg v2\_struct\_0 X0) \wedge ((v1\_vectsp\_1 X0) \wedge (v2\_vectsp\_1 X0)))) \quad (7)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v1\_group\_1 X0) \wedge ((v5\_vectsp\_1 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l6\_algstr\_0 X0)))))))) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 X0)) \wedge ((v1\_algseq\_1 X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 X0)))))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_ratfunc1 X0 X1 X2 X3) \Rightarrow (r1\_polynom5 X0 (k5\_vfunct\_1 k5\_numbers X0 (k8\_polynom3 X0 X1 X2) X3)))))) \end{aligned}$$