

l52_ratfunc1

(TMEn5Ketgv6X891QFLsA8ana7r6LkBeKW8S)

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Let $v7_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v33_algstr_0 : \iota \Rightarrow o$ 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 $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_ratfunc1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_ratfunc1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_ratfunc1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_ratfunc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xxreal_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_hurwitz : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_ratfunc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_ratfunc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_struct_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_polynom5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_ratfunc1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ 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 $v1_algseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_algseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_ratfunc1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $v3_vectsp_1 : \iota \Rightarrow o$ be given. Let $v6_vectsp_1 : \iota \Rightarrow o$ be given. Let $v1_vectsp_1 : \iota \Rightarrow o$ be given. Let $v2_vectsp_1 : \iota \Rightarrow o$ be given. Assume the fol-

lowing.

$$\begin{aligned}
& \forall X0.((\neg v6_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 \\
& X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((\\
& v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\
& X0) \wedge ((v1_vectsp_2 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\
& ((\neg v4_ratfunc1 X1 X0) \wedge (m1_ratfunc1 X1 X0)) \Rightarrow ((v5_ratfunc1 X1 X0) \Leftrightarrow \\
& (\exists X2.(m1_subset_1 X2 (u1_struct_0 X0)) \wedge ((X2 \neq k4_struct_0 \\
& X0) \wedge (k4_tarski (k3_polynom5 X0 (k4_ratfunc1 X0 X1) X2) (k3_polynom5 \\
& X0 (k5_ratfunc1 X0 X1) X2) = k11_ratfunc1 X0 X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v3_group_1 X0) \wedge (\\
& v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 \\
& X0)))))))))) \Rightarrow (\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 k5_numbers \\
& (u1_struct_0 X0)) \wedge ((v1_algseq_1 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
& (k2_zfmisc_1 k5_numbers (u1_struct_0 X0)))))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((X2 \neq k4_struct_0 X0) \Rightarrow (k1_algseq_1 \\
& X0 (k3_polynom5 X0 X1 X2) = k1_algseq_1 X0 X1))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v7_struct_0 X0) \wedge (l5_algstr_0 X0)) \wedge (m1_ratfunc1 X1 X0)) \Rightarrow (k5_ratfunc1 X0 X1 = k2_xtuple_0 X1) \tag{3}$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v7_struct_0 X0) \wedge (l5_algstr_0 X0)) \wedge (m1_ratfunc1 X1 X0)) \Rightarrow (k4_ratfunc1 X0 X1 = k1_xtuple_0 X1) \tag{4}$$

Assume the following.

$$\forall X0. \forall X1. k2_xtuple_0 (k4_tarski X0 X1) = X1 \tag{5}$$

Assume the following.

$$\forall X0. \forall X1. k1_xtuple_0 (k4_tarski X0 X1) = X0 \tag{6}$$

Assume the following.

$$\forall X0. (l6_algstr_0 X0) \Rightarrow ((l2_algstr_0 X0) \wedge (l5_algstr_0 X0)) \tag{7}$$

Assume the following.

$$\forall X0. (l5_algstr_0 X0) \Rightarrow ((l4_algstr_0 X0) \wedge (l4_struct_0 X0)) \tag{8}$$

Assume the following.

$$\forall X0. (l2_algstr_0 X0) \Rightarrow ((l2_struct_0 X0) \wedge (l1_algstr_0 X0)) \tag{9}$$

Assume the following.

$$\forall X0.(l1_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v7_struct_0 X0) \wedge (l5_algstr_0 X0)) \wedge \\ & (m1_ratfunc1 X1 X0)) \Rightarrow ((v1_funct_1 (k5_ratfunc1 X0 X1)) \wedge ((v1_funct_2 \\ & (k5_ratfunc1 X0 X1) k5_numbers (u1_struct_0 X0)) \wedge ((v1_algseq_1 \\ & (k5_ratfunc1 X0 X1) X0) \wedge ((\neg v1_ratfunc1 (k5_ratfunc1 X0 X1) X0) \wedge \\ & (m1_subset_1 (k5_ratfunc1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers \\ & (u1_struct_0 X0)))))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v7_struct_0 X0) \wedge (l5_algstr_0 X0)) \wedge \\ & (m1_ratfunc1 X1 X0)) \Rightarrow ((v1_funct_1 (k4_ratfunc1 X0 X1)) \wedge ((v1_funct_2 \\ & (k4_ratfunc1 X0 X1) k5_numbers (u1_struct_0 X0)) \wedge ((v1_algseq_1 \\ & (k4_ratfunc1 X0 X1) X0) \wedge (m1_subset_1 (k4_ratfunc1 X0 X1) (k1_zfmisc_1 \\ & (k2_zfmisc_1 k5_numbers (u1_struct_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge \\ & ((v33_algstr_0 X0) \wedge (v3_group_1 X0) \wedge (v5_group_1 X0) \wedge (v4_vectsp_1 \\ & X0) \wedge (v5_vectsp_1 X0) \wedge (v2_rlvect_1 X0) \wedge (v3_rlvect_1 X0) \wedge \\ & ((v4_rlvect_1 X0) \wedge ((v1_vectsp_2 X0) \wedge (l6_algstr_0 X0)))))))) \wedge \\ & (m1_ratfunc1 X1 X0)) \Rightarrow (m1_ratfunc1 (k11_ratfunc1 X0 X1) X0) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l2_struct_0 X0)) \Rightarrow (\forall X1. \\ & ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 k5_numbers (u1_struct_0 X0)) \wedge \\ & ((v1_algseq_1 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & k5_numbers (u1_struct_0 X0)))))) \Rightarrow (k2_hurwitz X0 X1 = k6_xcmplx_0 \\ & (k1_algseq_1 X0 X1) np_1)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 \\ & X0) \wedge (v3_group_1 X0) \wedge (v5_group_1 X0) \wedge (v4_vectsp_1 X0) \wedge ((\\ & v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 \\ & X0) \wedge ((v1_vectsp_2 X0) \wedge (l6_algstr_0 X0)))))))))) \Rightarrow (\forall X1. \\ & (m1_ratfunc1 X1 X0) \Rightarrow (k12_ratfunc1 X0 X1 = k4_xxreal_0 (k2_hurwitz \\ & X0 (k4_ratfunc1 X0 (k11_ratfunc1 X0 X1)) (k2_hurwitz X0 (k5_ratfunc1 \\ & X0 (k11_ratfunc1 X0 X1)))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v4_vectsp_1 X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v3_vectsp_1 X0) \wedge (v6_vectsp_1 X0)))) \quad (16)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v5_vectsp_1 X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v1_vectsp_1 X0) \wedge (v2_vectsp_1 X0)))) \quad (17)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow ((v2_struct_0 X0) \Rightarrow (v7_struct_0 X0)) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.(l6_algstr_0 X0) \Rightarrow & (((\neg v2_struct_0 X0) \wedge ((v6_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v1_vectsp_1 X0) \wedge ((v3_vectsp_1 X0) \wedge \\ & ((v3_rlvect_1 X0) \wedge (v4_rlvect_1 X0))))))) \Rightarrow ((\neg v2_struct_0 X0) \wedge \\ & ((v7_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v1_vectsp_1 X0) \wedge ((v3_vectsp_1 X0) \wedge ((v3_rlvect_1 X0) \wedge (v4_rlvect_1 X0)))))))) \end{aligned} \quad (19)$$

Theorem 1

$$\begin{aligned} \forall X0. & ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v33_algstr_0 X0) \wedge ((v3_group_1 X0) \wedge ((v5_group_1 X0) \wedge ((v4_vectsp_1 X0) \wedge ((v5_vectsp_1 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v1_vectsp_2 X0) \wedge (l6_algstr_0 X0))))))))))) \Rightarrow (\forall X1. \\ & ((\neg v4_ratfunc1 X1 X0) \wedge (m1_ratfunc1 X1 X0)) \Rightarrow ((v5_ratfunc1 X1 X0) \Rightarrow (k12_ratfunc1 X0 X1 = k4_xxreal_0 (k2_hurwitz X0 (k4_ratfunc1 X0 X1)) (k2_hurwitz X0 (k5_ratfunc1 X0 X1)))) \end{aligned}$$