

## t47\_euclid\_2

(TMZWbq22SoZz1fcA3t1wHKS2xrZWwUnDZ6k)

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Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $k9\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_square\_1 : \iota \Rightarrow \iota$  be given. Let  $k12\_euclid : \iota \Rightarrow \iota$  be given. Let  $k3\_rvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k1\_euclid : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_rvsum\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v4\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (u1\_struct\_0 (k15\_euclid X0) = k1\_euclid X0) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v1\_finseq\_1 \\ X0) \wedge (v3\_valued\_0 X0)))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 \\ X1) \wedge ((v1\_finseq\_1 X1) \wedge (v3\_valued\_0 X1)))) \Rightarrow ((k3\_finseq\_1 X0 = \\ k3\_finseq\_1 X1) \Rightarrow (k9\_binop\_2 (k5\_square\_1 (k12\_euclid (k4\_rvsum\_1 \\ X0 X1))) (k5\_square\_1 (k12\_euclid (k8\_rvsum\_1 X0 X1))) = k11\_binop\_2 \\ np\_2 (k9\_binop\_2 (k5\_square\_1 (k12\_euclid X0)) (k5\_square\_1 \\ (k12\_euclid X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow (k3\_finseq\_1 X0 = k1\_card\_1 X0) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v7\_ordinal1 \\ & X0)\wedge((m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid X0)))\wedge((m1\_subset\_1 \\ & X2 (u1\_struct\_0 (k15\_euclid X0)))\wedge(((v1\_relat\_1 X3)\wedge((v1\_funct\_1 \\ & X3)\wedge((v1\_finseq\_1 X3)\wedge(v3\_valued\_0 X3))))\wedge((v1\_relat\_1 X4)\wedge \\ & ((v1\_funct\_1 X4)\wedge((v1\_finseq\_1 X4)\wedge(v3\_valued\_0 X4))))))\Rightarrow \\ & (((X1 = X3)\wedge(X2 = X4))\Rightarrow(k5\_algstr\_0 (k15\_euclid X0) X1 X2 = k8\_rvsum\_1 \\ & X3 X4)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v7\_ordinal1 \\ & X0)\wedge((m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid X0)))\wedge((m1\_subset\_1 \\ & X2 (u1\_struct\_0 (k15\_euclid X0)))\wedge(((v1\_relat\_1 X3)\wedge((v1\_funct\_1 \\ & X3)\wedge((v1\_finseq\_1 X3)\wedge(v3\_valued\_0 X3))))\wedge((v1\_relat\_1 X4)\wedge \\ & ((v1\_funct\_1 X4)\wedge((v1\_finseq\_1 X4)\wedge(v3\_valued\_0 X4))))))\Rightarrow \\ & (((X1 = X3)\wedge(X2 = X4))\Rightarrow(k3\_rlvect\_1 (k15\_euclid X0) X1 X2 = k4\_rvsum\_1 \\ & X3 X4)) \end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v4\_funct\_1 (u1\_struct\_0 (k15\_euclid X0))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(v3\_card\_1 X1 X0)\Leftrightarrow(k1\_card\_1 X1 = X0) \tag{7}$$

Assume the following.

$$\forall X0.(v4\_funct\_1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow( (v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1))) \tag{8}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid X0)))\Rightarrow(v3\_card\_1 X1 X0)) \tag{9}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid X0)))\Rightarrow(v3\_valued\_0 X1)) \tag{10}$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 (k15\_euclid X0)))\Rightarrow(v1\_finseq\_1 X1)) \tag{11}$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0 \\ (k15\_euclid\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ ( \\ k15\_euclid\ X0))) \Rightarrow (k9\_binop\_2\ (k5\_square\_1\ (k12\_euclid\ (k3\_rlvect\_1 \\ (k15\_euclid\ X0)\ X1\ X2)))\ (k5\_square\_1\ (k12\_euclid\ (k5\_algstr\_0 \\ (k15\_euclid\ X0)\ X1\ X2))) = k11\_binop\_2\ np\_2\ (k9\_binop\_2\ (k5\_square\_1 \\ (k12\_euclid\ X1)\ (k5\_square\_1\ (k12\_euclid\ X2))))))) \end{aligned}$$