

# t12\_topreal9 (TMXgrKZNvpz- ZAht9wFNW3YKZ6DyVTpoYpY5)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $k3\_topreal9 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k12\_euclid : \iota \Rightarrow \iota$  be given. Let  $k5\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rltopsp1 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rltopsp1 : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(v1\_xreal\_0 \\ & X1) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 (k15\_euclid X0))) \Rightarrow \\ & (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 (k15\_euclid X0))) \Rightarrow ( \\ & (X2 \in k3\_topreal9 X0 X3 X1) \Leftrightarrow (k12\_euclid (k5\_algstr\_0 (k15\_euclid \\ & X0) X2 X3) = X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v3\_rlvect\_1 \\ & X0) \wedge ((v4\_rlvect\_1 X0) \wedge (l2\_algstr\_0 X0)))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (u1\_struct\_0 X0)) \Rightarrow (k5\_algstr\_0 X0 X1 (k4\_struct\_0 X0) = X1)) \end{aligned} \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow ((v2\_pre\_topc (k15\_euclid X0)) \wedge \\ & ((v13\_algstr\_0 (k15\_euclid X0)) \wedge ((v2\_rlvect\_1 (k15\_euclid X0)) \wedge \\ & ((v3\_rlvect\_1 (k15\_euclid X0)) \wedge ((v4\_rlvect\_1 (k15\_euclid X0)) \wedge \\ & ((v5\_rlvect\_1 (k15\_euclid X0)) \wedge ((v6\_rlvect\_1 (k15\_euclid X0)) \wedge \\ & ((v7\_rlvect\_1 (k15\_euclid X0)) \wedge ((v8\_rlvect\_1 (k15\_euclid X0)) \wedge \\ & (v5\_rltopsp1 (k15\_euclid X0)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow((\neg v2\_struct\_0\ (k15\_euclid\ X0))\wedge (v5\_rltopsp1\ (k15\_euclid\ X0))) \quad (5)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0)\Rightarrow((l2\_struct\_0\ X0)\wedge(l1\_algstr\_0\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1\_rlvect\_1\ X0)\Rightarrow(l2\_algstr\_0\ X0) \quad (7)$$

Assume the following.

$$\forall X0.(l1\_rltopsp1\ X0)\Rightarrow((l1\_rlvect\_1\ X0)\wedge(l1\_pre\_topc\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l2\_struct\_0\ X0)\Rightarrow(m1\_subset\_1\ (k4\_struct\_0\ X0)\ (u1\_struct\_0\ X0)) \quad (9)$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow((v5\_rltopsp1\ (k15\_euclid\ X0))\wedge (l1\_rltopsp1\ (k15\_euclid\ X0))) \quad (10)$$

Assume the following.

$$\forall X0.(m1\_subset\_1\ X0\ k4\_ordinal1)\Rightarrow(v7\_ordinal1\ X0) \quad (11)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(m1\_subset\_1\ X0\ k5\_numbers)\Rightarrow(\forall X1.(v1\_xreal\_0 \\ &X1)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ (k15\_euclid\ X0)))\Rightarrow \\ &((X2 \in k3\_topreal9\ X0\ (k4\_struct\_0\ (k15\_euclid\ X0))\ X1)\Rightarrow(k12\_euclid \\ &X2 = X1)))) \end{aligned}$$