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(TMVRZJowVP1cvnU5hguCs7BVo46kKnJYZuR)

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Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rltopsp1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k19\_euclid : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k1\_real\_1 : \iota \Rightarrow \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k1\_sppol\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  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  $v5\_rlvect\_1 : \iota \Rightarrow o$  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  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rltopsp1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \quad (1)$$

Assume the following.

$$((v2\_xxreal\_0 np\_3) \wedge (m2\_subset\_1 np\_3 k1\_numbers k5\_numbers)) \wedge ((m1\_subset\_1 np\_3 k5\_numbers) \wedge (m1\_subset\_1 np\_3 k1\_numbers)) \quad (2)$$

Assume the following.

$$((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \quad (3)$$

Assume the following.

$$((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \quad (4)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (5)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (6)$$

Assume the following.

$$\begin{aligned} r1\_tarski (k1\_rltopsp1 (k15\_euclid np\_2) (k19\_euclid np\_1 ( \\ k1\_real\_1 np\_3)) (k19\_euclid k6\_numbers (k1\_real\_1 np\_3))) \\ (k1\_rltopsp1 (k15\_euclid np\_2) (k19\_euclid (k1\_real\_1 np\_1) \\ (k1\_real\_1 np\_3)) (k19\_euclid np\_1 (k1\_real\_1 np\_3))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} r1\_tarski (k1\_rltopsp1 (k15\_euclid np\_2) (k19\_euclid np\_1 ( \\ k1\_real\_1 np\_3)) (k19\_euclid (k1\_real\_1 np\_1) (k1\_real\_1 np\_3))) \\ (k1\_sppol\_2 (k1\_real\_1 np\_1) np\_1 (k1\_real\_1 np\_3) np\_3) \end{aligned} \quad (8)$$

Assume the following.

$$v6\_membered k4\_ordinal1 \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 X0) \Rightarrow ((v2\_pre\_topc (k15\_euclid X0)) \wedge \\ ((v13\_algstr\_0 (k15\_euclid X0)) \wedge ((v2\_rlvect\_1 (k15\_euclid X0)) \wedge \\ ((v3\_rlvect\_1 (k15\_euclid X0)) \wedge ((v4\_rlvect\_1 (k15\_euclid X0)) \wedge \\ ((v5\_rlvect\_1 (k15\_euclid X0)) \wedge ((v6\_rlvect\_1 (k15\_euclid X0)) \wedge \\ ((v7\_rlvect\_1 (k15\_euclid X0)) \wedge ((v8\_rlvect\_1 (k15\_euclid X0)) \wedge \\ (v5\_rltopsp1 (k15\_euclid X0)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow ((\neg v2\_struct\_0 (k15\_euclid X0)) \wedge \\ (v5\_rltopsp1 (k15\_euclid X0))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_rltopsp1 X0) \Rightarrow ((l1\_rlvect\_1 X0) \wedge (l1\_pre\_topc X0)) \quad (12)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (m1\_subset\_1 (k1\_real\_1 \\ X0) k1\_numbers) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow (m1\_subset\_1 \\ (k19\_euclid X0 X1) (u1\_struct\_0 (k15\_euclid np\_2))) \quad (14)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow ((v5\_rltopsp1 (k15\_euclid X0)) \wedge \\ (l1\_rltopsp1 (k15\_euclid X0))) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (v13\_algstr\_0 \\ & X0) \wedge (v2\_rlvect\_1 X0) \wedge (v3\_rlvect\_1 X0) \wedge (v4\_rlvect\_1 X0) \wedge \\ & ((v5\_rlvect\_1 X0) \wedge (v6\_rlvect\_1 X0) \wedge (v7\_rlvect\_1 X0) \wedge (v8\_rlvect\_1 \\ & X0) \wedge (l1\_rlvect\_1 X0)))))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 \\ & X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (k1\_rltopsp1 X0 X1 X2 = \\ & k1\_rltopsp1 X0 X2 X1) \end{aligned} \tag{16}$$

Assume the following.

$$\forall X0. (m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \tag{17}$$

Assume the following.

$$\forall X0. (v6\_membered X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 X0) \Rightarrow (v7\_ordinal1 X1)) \tag{18}$$

**Theorem 1**

$$\begin{aligned} & r1\_tarski (k1\_rltopsp1 (k15\_euclid np\_2) (k19\_euclid np\_1 ( \\ & k1\_real\_1 np\_3)) (k19\_euclid k6\_numbers (k1\_real\_1 np\_3))) \\ & (k1\_sppol\_2 (k1\_real\_1 np\_1) np\_1 (k1\_real\_1 np\_3) np\_3) \end{aligned}$$