

# t19\_goboard5 (TMZRPVkJFu- dAWx3qRfW4qug4RHt4ue9dgx86)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v3\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_matrix\_1 : \iota \Rightarrow o$  be given. Let  $v2\_goboard1 : \iota \Rightarrow o$  be given. Let  $v3\_goboard1 : \iota \Rightarrow o$  be given. Let  $v4\_goboard1 : \iota \Rightarrow o$  be given. Let  $v5\_goboard1 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_finseq\_2 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_matrix\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rltopsp1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_matrix\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_goboard5 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_goboard5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_goboard5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v6\_membered : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X0 X2)) \Rightarrow (r1\_tarski X0 (k3\_xboole\_0 X1 X2)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1. (m1\_subset\_1 \\ & \quad X1 k5\_numbers) \Rightarrow (\forall X2. ((v1\_matrix\_1 X2) \wedge (m2\_finseq\_1 X2 \\ & \quad (k3\_finseq\_2 (u1\_struct\_0 (k15\_euclid np\_2)))))) \Rightarrow (((v3\_goboard1 \\ & \quad X2) \wedge ((v4\_goboard1 X2) \wedge ((r1\_xxreal\_0 np\_1 X0) \wedge ((r1\_xxreal\_0 \\ & \quad X0 (k3\_finseq\_1 X2)) \wedge ((r1\_xxreal\_0 np\_1 X1) \wedge (r1\_xxreal\_0 (k2\_nat\_1 \\ & \quad X1 np\_1) (k1\_matrix\_1 X2)))))) \Rightarrow (r1\_tarski (k1\_rltopsp1 (k15\_euclid \\ & \quad np\_2) (k3\_matrix\_1 (u1\_struct\_0 (k15\_euclid np\_2)) X2 X0 X1) \\ & \quad (k3\_matrix\_1 (u1\_struct\_0 (k15\_euclid np\_2)) X2 X0 (k2\_nat\_1 \\ & \quad X1 np\_1))) (k2\_goboard5 X2 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k5\_numbers) \Rightarrow (\forall X2.((v1\_matrix\_1 X2) \wedge (m2\_finseq\_1 X2 \\ & (k3\_finseq\_2 (u1\_struct\_0 (k15\_euclid np\_2)))))) \Rightarrow (((v2\_goboard1 \\ & X2) \wedge ((v5\_goboard1 X2) \wedge ((r1\_xxreal\_0 np\_1 X0) \wedge ((r1\_xxreal\_0 \\ & X0 (k3\_finseq\_1 X2)) \wedge (r1\_xxreal\_0 np\_1 X1)))))) \Rightarrow ((v3\_relat\_1 \\ & X2) \vee ((r1\_xxreal\_0 (k1\_matrix\_1 X2) X1) \vee (r1\_tarski (k1\_rltopsp1 \\ & (k15\_euclid np\_2) (k3\_matrix\_1 (u1\_struct\_0 (k15\_euclid np\_2)) \\ & X2 X0 X1) (k3\_matrix\_1 (u1\_struct\_0 (k15\_euclid np\_2)) X2 X0 (k2\_nat\_1 \\ & X1 np\_1))) (k1\_goboard5 X2 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (( \\ & \neg r1\_xxreal\_0 (k1\_nat\_1 X1 np\_1) X0) \Leftrightarrow (r1\_xxreal\_0 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & X0)) \Rightarrow (k9\_subset\_1 X0 X1 X2 = k3\_xboole\_0 X1 X2) \end{aligned} \quad (7)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers) \wedge (v7\_ordinal1 \\ & X1)) \Rightarrow (k2\_nat\_1 X0 X1 = k2\_xcmplx\_0 X0 X1) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v7\_ordinal1 X0) \wedge (m1\_subset\_1 X1 k5\_numbers)) \Rightarrow \\ & (k1\_nat\_1 X0 X1 = k2\_xcmplx\_0 X0 X1) \end{aligned} \quad (10)$$

Assume the following.

$$v6\_membered k4\_ordinal1 \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0)\Rightarrow((v1\_funct\_1 X1)\wedge((v1\_finseq\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0)))))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1 X1 X0)\Rightarrow((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))) \quad (13)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge((v1\_finseq\_1 X0)\wedge(v1\_matrix\_1 X0))))\Rightarrow(m1\_subset\_1 (k1\_matrix\_1 X0) k5\_numbers) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_matrix\_1 X0)\wedge(m1\_finseq\_1 X0 (k3\_finseq\_2 (u1\_struct\_0 (k15\_euclid np\_2))))))\wedge(v7\_ordinal1 X1))\Rightarrow(m1\_subset\_1 (k1\_goboard5 X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))) \quad (15)$$

Assume the following.

$$\forall X0.((v1\_matrix\_1 X0)\wedge(m2\_finseq\_1 X0 (k3\_finseq\_2 (u1\_struct\_0 (k15\_euclid np\_2))))))\Rightarrow(\forall X1.(v7\_ordinal1 X1)\Rightarrow(\forall X2.(v7\_ordinal1 X2)\Rightarrow(k3\_goboard5 X0 X1 X2 = k9\_subset\_1 (u1\_struct\_0 (k15\_euclid np\_2)) (k1\_goboard5 X0 X1) (k2\_goboard5 X0 X2)))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))\Rightarrow(k9\_subset\_1 X0 X1 X2 = k9\_subset\_1 X0 X2 X1) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k5\_numbers)\wedge(v7\_ordinal1 X1))\Rightarrow(k2\_nat\_1 X0 X1 = k2\_nat\_1 X1 X0) \quad (19)$$

Assume the following.

$$\forall X0.(v6\_membered X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow(v7\_ordinal1 X1)) \quad (20)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 k5\_numbers) \Rightarrow (\forall X2.((\neg v3\_relat\_1 X2) \wedge ((v1\_matrix\_1 \\ & X2) \wedge ((v2\_goboard1 X2) \wedge ((v3\_goboard1 X2) \wedge ((v4\_goboard1 X2) \wedge \\ & ((v5\_goboard1 X2) \wedge (m2\_finseq\_1 X2 (k3\_finseq\_2 (u1\_struct\_0 \\ & (k15\_euclid np\_2)))))))))) \Rightarrow (((r1\_xxreal\_0 np\_1 X0) \wedge ((r1\_xxreal\_0 \\ & X0 (k3\_finseq\_1 X2)) \wedge (r1\_xxreal\_0 np\_1 X1))) \Rightarrow ((r1\_xxreal\_0 \\ & (k1\_matrix\_1 X2) X1) \vee (r1\_tarski (k1\_rltopsp1 (k15\_euclid np\_2) \\ & (k3\_matrix\_1 (u1\_struct\_0 (k15\_euclid np\_2)) X2 X0 X1) (k3\_matrix\_1 \\ & (u1\_struct\_0 (k15\_euclid np\_2)) X2 X0 (k2\_nat\_1 X1 np\_1))) (k3\_goboard5 \\ & X2 X0 X1)))))) \end{aligned}$$