

# t23\_bintree2 (TMYaZSFM- ReLK4XuuFrB5ZBik7cHutwQKVyx)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_trees\_1 : \iota \Rightarrow o$  be given. Let  $v1\_bintree2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_bintree2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $k10\_binarith : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $k3\_power : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_margrel1 : \iota$  be given. Let  $k4\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_euclid : \iota \Rightarrow \iota$  be given. Let  $k5\_series\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_binarith : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_margrel1 : \iota$  be given. Let  $k8\_margrel1 : \iota$  be given. Let  $v2\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_xboolean : \iota$  be given. Let  $k1\_xboolean : \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k5\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_euclid : \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Assume the following.

$$\forall X0. k2\_finseq\_2\ np\_1\ X0 = k9\_finseq\_1\ X0 \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0\ X0) \Rightarrow (k3\_power\ X0\ np\_1 = X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0\ X0) \wedge ((v1\_trees\_1\ X0) \wedge (v1\_bintree2 \\ & X0))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ k5\_numbers)) \Rightarrow \\ & (\forall X2. (m2\_finseq\_2\ X2\ k6\_margrel1\ (k4\_finseq\_2\ X1\ k6\_margrel1)) \Rightarrow \\ & ((X2 = k5\_euclid\ X1) \Rightarrow (k1\_funct\_1\ (k2\_bintree2\ X0\ X1)\ (k5\_series\_1 \\ & np\_2\ X1) = k3\_binarith\ X1\ X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$k3\_binarith\ np\_1\ (k10\_binarith\ k6\_margrel1\ k7\_margrel1) = k10\_binarith\ k6\_margrel1\ k8\_margrel1 \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$\neg v1\_xboole\_0 \ np\_1 \quad (7)$$

Assume the following.

$$\forall X0. k9\_finseq\_1 \ X0 = k5\_finseq\_1 \ X0 \quad (8)$$

Assume the following.

$$k8\_margrel1 = k2\_xboolean \quad (9)$$

Assume the following.

$$k7\_margrel1 = k1\_xboolean \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v7\_ordinal1 \ X0) \wedge (v7\_ordinal1 \ X1)) \Rightarrow ( \\ & k5\_series\_1 \ X0 \ X1 = k3\_power \ X0 \ X1) \end{aligned} \quad (11)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1\_xboole\_0 \ X0) \wedge ((v7\_ordinal1 \\ & X1) \wedge (m1\_subset\_1 \ X2 \ X0))) \Rightarrow (k5\_finseq\_2 \ X0 \ X1 \ X2 = k2\_finseq\_2 \ X1 \\ & X2) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0. (v7\_ordinal1 \ X0) \Rightarrow (k5\_euclid \ X0 = k4\_euclid \ X0) \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 \ X0) \wedge (m1\_subset\_1 \ X1 \ X0)) \Rightarrow \\ & (k10\_binarith \ X0 \ X1 = k5\_finseq\_1 \ X1) \end{aligned} \quad (15)$$

Assume the following.

$$(\neg v1\_xboole\_0 \ k4\_ordinal1) \wedge (v3\_ordinal1 \ k4\_ordinal1) \quad (16)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k6\_margrel1 \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 \ X0)\wedge((\neg v1\_xboole\_0 \ X1)\wedge \\ (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ X0))))\Rightarrow(\forall X2.(m2\_subset\_1 \\ X2 \ X0 \ X1)\Rightarrow(m1\_subset\_1 \ X2 \ X0)) \end{aligned} \quad (18)$$

Assume the following.

$$m1\_subset\_1 \ k8\_margrel1 \ k6\_margrel1 \quad (19)$$

Assume the following.

$$m1\_subset\_1 \ k7\_margrel1 \ k6\_margrel1 \quad (20)$$

Assume the following.

$$m2\_subset\_1 \ k6\_numbers \ k1\_numbers \ k5\_numbers \quad (21)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (22)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 \ X0)\wedge((v7\_ordinal1 \\ X1)\wedge(m1\_subset\_1 \ X2 \ X0)))\Rightarrow(m2\_finseq\_2 \ (k5\_finseq\_2 \ X0 \ X1 \ X2) \\ X0 \ (k4\_finseq\_2 \ X1 \ X0)) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 \ X0)\Rightarrow(k4\_euclid \ X0 = k5\_finseq\_2 \ k1\_numbers \\ X0 \ k6\_numbers) \quad (24)$$

Assume the following.

$$k2\_xboolean = np\_1 \quad (25)$$

Assume the following.

$$k1\_xboolean = k6\_numbers \quad (26)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k4\_ordinal1)\Rightarrow(v7\_ordinal1 \ X0) \quad (27)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k1\_numbers)\Rightarrow(v1\_xreal\_0 \ X0) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 \ X0)\Rightarrow(\forall X1.(m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \\ X0))\Rightarrow(v1\_xboole\_0 \ X1)) \quad (29)$$

**Theorem 1**

$$\forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_trees\_1 X0) \wedge (v1\_bintree2 X0)) \Rightarrow (k1\_funct\_1 (k2\_bintree2 X0 np\_1) np\_2 = k10\_binarith k5\_numbers np\_1)$$