

## t23\_dist\_1

(TMdh456hCVkfWnSTF2Yq6PZGz6naraBovR9)

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Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_dist\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_dist\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_dist\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k4\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_dist\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_uproots : \iota \Rightarrow \iota$  be given. Let  $k12\_binop\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 X0) \Rightarrow \\ (\forall X2.(m2\_finseq\_1 X2 X0) \Rightarrow ((r1\_dist\_1 X0 X1 X2) \Leftrightarrow (k4\_dist\_1 \\ X0 X1 = k4\_dist\_1 X0 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_finset\_1 X0) \wedge (m1\_finseq\_1 X1 X0)) \Rightarrow \\ (m2\_finseq\_1 (k4\_dist\_1 X0 X1) k1\_numbers) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 X0) \Rightarrow \\ (\forall X2.(m2\_finseq\_1 X2 k1\_numbers) \Rightarrow ((X2 = k4\_dist\_1 X0 X1) \Leftrightarrow \\ ((k4\_finseq\_1 X2 = k2\_finseq\_1 (k5\_card\_1 X0)) \wedge (\forall X3.(v7\_ordinal1 \\ X3) \Rightarrow ((X3 \in k4\_finseq\_1 X2) \Rightarrow (k1\_funct\_1 X2 X3 = k3\_dist\_1 X0 X1 (k1\_funct\_1 \\ (k1\_uproots X0) X3)))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 X0) \Rightarrow \\ ((v1\_dist\_1 X1 X0) \Leftrightarrow (\forall X2.(v7\_ordinal1 X2) \Rightarrow ((X2 \in k4\_finseq\_1 \\ (k4\_dist\_1 X0 X1)) \Rightarrow (k1\_funct\_1 (k4\_dist\_1 X0 X1) X2 = k12\_binop\_2 \\ np\_1 (k5\_card\_1 X0)))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 X0) \Rightarrow \\ & (\forall X2.(m2\_finseq\_1 X2 X0) \Rightarrow (((v1\_dist\_1 X1 X0) \wedge (v1\_dist\_1 \\ & X2 X0)) \Rightarrow (r1\_dist\_1 X0 X1 X2)))) \end{aligned}$$