

t88\_rvsum\_1

(TMQ72yw9qRPfmtwRjXHggxsntWh11UoyCVt)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v3\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k18\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $k7\_binop\_2 : \iota \Rightarrow \iota$  be given. Let  $k16\_rvsum\_1 : \iota \Rightarrow \iota$  be given. Let  $r2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k33\_binop\_2 : \iota$  be given. Let  $k31\_binop\_2 : \iota$  be given. Let  $v1\_finseqop : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_finsop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$r2\_funct\_2 \ k1\_numbers \ k1\_numbers \ (k5\_finseqop \ k1\_numbers \ k33\_binop\_2) \\ k31\_binop\_2 \tag{1}$$

Assume the following.

$$v1\_finseqop \ k33\_binop\_2 \ k1\_numbers \tag{2}$$

Assume the following.

$$\forall X0. (\neg v1\_xboole\_0 \ X0) \Rightarrow (\forall X1. ((v1\_funct\_1 \ X1) \wedge (v1\_funct\_2 \ X1 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0) \wedge (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X0) \ X0)))) \Rightarrow (\forall X2. (m2\_finseq\_1 \ X2 \ X0) \Rightarrow (((v1\_binop\_1 \ X1 \ X0) \wedge ((v2\_binop\_1 \ X1 \ X0) \wedge ((v1\_setwiseo \ X1 \ X0) \wedge (v1\_finseqop \ X1 \ X0)))) \Rightarrow (k3\_funct\_2 \ X0 \ X0 \ (k5\_finseqop \ X0 \ X1) \ (k1\_finsop\_1 \ X0 \ X2 \ X1) = k1\_finsop\_1 \ X0 \ (k4\_finseqop \ X0 \ X0 \ X2 \ (k5\_finseqop \ X0 \ X1)) \ X1)))) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1\_funct\_1 X2) \wedge \\ & ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow ((r2\_funct\_2 X0 X1 X2 \\ & X3) \Leftrightarrow (X2 = X3)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_finseq\_1 X2 \\ & X0) \wedge ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 X0 X1) \wedge (m1\_subset\_1 X3 ( \\ & k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (k4\_finseqop X0 X1 X2 X3 = \\ & k3\_relat\_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. (m1\_finseq\_1 X0 k1\_numbers) \Rightarrow (k18\_rvsum\_1 X0 = k16\_rvsum\_1 X0) \quad (8)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v3\_valued\_0 X0) \wedge (v1\_finseq\_1 X0)))) \Rightarrow (m2\_finseq\_1 X0 k1\_numbers) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v3\_valued\_0 \\ & X0) \wedge (v1\_finseq\_1 X0)))) \Rightarrow ((v1\_xcmplx\_0 (k16\_rvsum\_1 X0)) \wedge (v1\_xreal\_0 \\ & (k16\_rvsum\_1 X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 k33\_binop\_2) \wedge ((v1\_funct\_2 k33\_binop\_2 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers) k1\_numbers) \wedge ((v1\_binop\_1 k33\_binop\_2 \\ & k1\_numbers) \wedge (v2\_binop\_1 k33\_binop\_2 k1\_numbers))) \end{aligned} \quad (11)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (12)$$

Assume the following.

$$(v1\_funct\_1\ k33\_binop\_2) \wedge ((v1\_funct\_2\ k33\_binop\_2\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)\ k1\_numbers) \wedge (v1\_setwiseo\ k33\_binop\_2\ k1\_numbers)) \quad (13)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge ((v3\_valued\_0\ X0) \wedge (v1\_finseq\_1\ X0)))) \Rightarrow (m2\_finseq\_1\ (k6\_rvsum\_1\ X0)\ k1\_numbers) \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1\_xboole\_0\ X0) \wedge ((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2\ X1\ (k2\_zfmisc\_1\ X0\ X0)\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)\ X0)))))) \Rightarrow ((v1\_funct\_1\ (k5\_finseqop\ X0\ X1)) \wedge ((v1\_funct\_2\ (k5\_finseqop\ X0\ X1)\ X0\ X0) \wedge (m1\_subset\_1\ (k5\_finseqop\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))))) \quad (15)$$

Assume the following.

$$(v1\_funct\_1\ k33\_binop\_2) \wedge ((v1\_funct\_2\ k33\_binop\_2\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)\ k1\_numbers) \wedge (m1\_subset\_1\ k33\_binop\_2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)\ k1\_numbers)))) \quad (16)$$

Assume the following.

$$(v1\_funct\_1\ k31\_binop\_2) \wedge ((v1\_funct\_2\ k31\_binop\_2\ k1\_numbers\ k1\_numbers) \wedge (m1\_subset\_1\ k31\_binop\_2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)))) \quad (17)$$

Assume the following.

$$\forall X0. (m1\_finseq\_1\ X0\ k1\_numbers) \Rightarrow (m1\_subset\_1\ (k18\_rvsum\_1\ X0)\ k1\_numbers) \quad (18)$$

Assume the following.

$$\forall X0. ((v1\_funct\_1\ X0) \wedge ((v1\_funct\_2\ X0\ k1\_numbers\ k1\_numbers) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k1\_numbers\ k1\_numbers)))))) \Rightarrow ((X0 = k31\_binop\_2) \Leftrightarrow (\forall X1. (v1\_xreal\_0\ X1) \Rightarrow (k1\_funct\_1\ X0\ X1 = k7\_binop\_2\ X1))) \quad (19)$$

Assume the following.

$$\forall X0. ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge ((v3\_valued\_0\ X0) \wedge (v1\_finseq\_1\ X0)))) \Rightarrow (k6\_rvsum\_1\ X0 = k3\_relat\_1\ X0\ k31\_binop\_2) \quad (20)$$

Assume the following.

$$\forall X0.(m2\_finseq\_1 X0 k1\_numbers) \Rightarrow (k18\_rsum\_1 X0 = k1\_finsop\_1 k1\_numbers X0 k33\_binop\_2) \quad (21)$$

**Theorem 1**

$$\forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge ((v3\_valued\_0 X0) \wedge (v1\_finseq\_1 X0)))) \Rightarrow (k18\_rsum\_1 (k6\_rsum\_1 X0) = k7\_binop\_2 (k16\_rsum\_1 X0))$$