

# t18\_integr14 (TMaSTiNUzA- iUcx6umQnnEyQXAYtiEAPoGD8)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v2\_measure5 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_rcomp\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k24\_sin\_cos : \iota$  be given. Let  $k19\_sin\_cos : \iota$  be given. Let  $k5\_square\_1 : \iota \Rightarrow \iota$  be given. Let  $k16\_sin\_cos : \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_fdiff\_9 : \iota$  be given. Let  $v1\_fcont\_1 : \iota \Rightarrow o$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_integra5 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k32\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $k5\_seq\_4 : \iota \Rightarrow \iota$  be given. Let  $r2\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_integra5 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_comseq\_2 : \iota \Rightarrow o$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v3\_rcomp\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers))) \Rightarrow \\ & ((r1\_tarski X0 (k1\_relset\_1 k1\_numbers (k1\_partfun1 k1\_numbers \\ & k1\_numbers k1\_numbers k1\_numbers k24\_sin\_cos k2\_fdiff\_9))) \Rightarrow \\ & ((r2\_fdiff\_1 (k32\_valued\_1 k1\_numbers k1\_numbers (k1\_partfun1 \\ & k1\_numbers k1\_numbers k1\_numbers k1\_numbers k24\_sin\_cos k2\_fdiff\_9)) \\ & X0) \wedge (\forall X1. (m1\_subset\_1 X1 k1\_numbers) \Rightarrow ((X1 \in X0) \Rightarrow (k1\_seq\_1 \\ & (k2\_fdiff\_1 (k32\_valued\_1 k1\_numbers k1\_numbers (k1\_partfun1 \\ & k1\_numbers k1\_numbers k1\_numbers k1\_numbers k24\_sin\_cos k2\_fdiff\_9)) \\ & X0) X1 = k10\_real\_1 (k8\_real\_1 (k1\_seq\_1 k24\_sin\_cos X1) (k1\_seq\_1 \\ & k19\_sin\_cos (k1\_seq\_1 k24\_sin\_cos X1))) (k5\_square\_1 (k1\_seq\_1 \\ & k16\_sin\_cos (k1\_seq\_1 k24\_sin\_cos X1))))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v2\_measure5 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 k1\_numbers)))) \Rightarrow (\forall X1. \forall X2. ((v1\_funct\_1 \\ & X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow \\ & (((r1\_tarski X0 X1) \wedge (r2\_fdiff\_1 X2 X1) \wedge (r1\_integra5 X0 (k2\_fdiff\_1 \\ & X2 X1)) \wedge (v1\_comseq\_2 (k2\_partfun1 k1\_numbers k1\_numbers (k2\_fdiff\_1 \\ & X2 X1) X0)))) \Rightarrow (k2\_integra5 X0 (k2\_fdiff\_1 X2 X1) = k9\_real\_1 (k1\_seq\_1 \\ & X2 (k4\_seq\_4 X0) (k1\_seq\_1 X2 (k5\_seq\_4 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v2\_measure5 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 k1\_numbers)))) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow \\ & (((r1\_tarski X0 (k1\_relset\_1 k1\_numbers X1)) \wedge (v1\_fcont\_1 (k2\_partfun1 \\ & k1\_numbers k1\_numbers X1 X0))) \Rightarrow (r1\_integra5 X0 X1))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v2\_measure5 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 k1\_numbers)))) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow \\ & (((r1\_tarski X0 (k1\_relset\_1 k1\_numbers X1)) \wedge (v1\_fcont\_1 (k2\_partfun1 \\ & k1\_numbers k1\_numbers X1 X0))) \Rightarrow (v1\_comseq\_2 (k2\_partfun1 k1\_numbers \\ & k1\_numbers X1 X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1\_funct\_1 X2) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_partfun1 \\ & X0 X1 X2 X3 = k5\_relat\_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$v3\_membered k1\_numbers \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((v3\_membered X1) \wedge ((v1\_funct\_1 \\ & X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((v1\_funct\_1 \\ & (k32\_valued\_1 X0 X1 X2)) \wedge (m1\_subset\_1 (k32\_valued\_1 X0 X1 X2) ( \\ & k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 k1\_numbers)))))) \end{aligned} \quad (8)$$

Assume the following.

$$(v1\_funct\_1 k2\_fdiff\_9) \wedge (m1\_subset\_1 k2\_fdiff\_9 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers))) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow ((v1\_funct\_1 (k2\_fdiff\_1 \\ & X0 X1)) \wedge (m1\_subset\_1 (k2\_fdiff\_1 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 k24\_sin\_cos) \wedge ((v1\_funct\_2 k24\_sin\_cos k1\_numbers \\ & k1\_numbers) \wedge (m1\_subset\_1 k24\_sin\_cos (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. \forall X5. \\ & (((v1\_funct\_1 X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X1)))) \wedge ((v1\_funct\_1 X5) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X2 X3)))))) \Rightarrow ((v1\_funct\_1 (k1\_partfun1 X0 X1 X2 X3 X4 X5)) \wedge (m1\_subset\_1 \\ & (k1\_partfun1 X0 X1 X2 X3 X4 X5) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X3)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k1\_numbers k1\_numbers)))) \Rightarrow (\forall X1. (r2\_fdiff\_1 X0 X1) \Rightarrow (\forall X2. \\ & ((v1\_funct\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\ & k1\_numbers)))) \Rightarrow ((X2 = k2\_fdiff\_1 X0 X1) \Leftrightarrow ((k1\_relset\_1 k1\_numbers \\ & X2 = X1) \wedge (\forall X3. (m1\_subset\_1 X3 k1\_numbers) \Rightarrow ((X3 \in X1) \Rightarrow (k1\_seq\_1 \\ & X2 X3 = k1\_fdiff\_1 X0 X3)))))) \end{aligned} \quad (13)$$

### Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge ((v2\_measure5 X0) \wedge (m1\_subset\_1 \\ & X0 (k1\_zfmisc\_1 k1\_numbers)))) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow \\ & (\forall X2. ((v3\_rcomp\_1 X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow \\ & (((r1\_tarski X0 X2) \wedge ((\forall X3. (m1\_subset\_1 X3 k1\_numbers) \Rightarrow \\ & ((X3 \in X2) \Rightarrow (k1\_seq\_1 X1 X3 = k10\_real\_1 (k8\_real\_1 (k1\_seq\_1 k24\_sin\_cos \\ & X3) (k1\_seq\_1 k19\_sin\_cos (k1\_seq\_1 k24\_sin\_cos X3))) (k5\_square\_1 \\ & (k1\_seq\_1 k16\_sin\_cos (k1\_seq\_1 k24\_sin\_cos X3)))))) \wedge ((r1\_tarski \\ & X2 (k1\_relset\_1 k1\_numbers (k1\_partfun1 k1\_numbers k1\_numbers \\ & k1\_numbers k1\_numbers k24\_sin\_cos k2\_fdiff\_9))) \wedge ((X2 = k1\_relset\_1 \\ & k1\_numbers X1) \wedge (v1\_fcont\_1 (k2\_partfun1 k1\_numbers k1\_numbers \\ & X1 X0)))))) \Rightarrow (k2\_integra5 X0 X1 = k9\_real\_1 (k1\_seq\_1 (k32\_valued\_1 \\ & k1\_numbers k1\_numbers (k1\_partfun1 k1\_numbers k1\_numbers k1\_numbers \\ & k1\_numbers k24\_sin\_cos k2\_fdiff\_9)) (k4\_seq\_4 X0)) (k1\_seq\_1 \\ & (k32\_valued\_1 k1\_numbers k1\_numbers (k1\_partfun1 k1\_numbers \\ & k1\_numbers k1\_numbers k1\_numbers k24\_sin\_cos k2\_fdiff\_9)) (k5\_seq\_4 \\ & X0)))))) \end{aligned}$$