

## t24\_int\_4

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Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_int\_2 : \iota \Rightarrow o$  be given. Let  $r1\_int\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Let  $k6\_int\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_square\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_newton : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k7\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_nat\_d : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k7\_nat\_d : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $np\_0 : \iota$  be given. Let  $k4\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k7\_xcmplx\_0 k6\_numbers X0 = k6\_numbers) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\ (v7\_ordinal1 X2) \Rightarrow ((\neg r1\_xxreal\_0 X2 k6\_numbers) \Rightarrow ((k6\_int\_1 ( \\ k6\_xcmplx\_0 X0 X1) X2 = k6\_numbers) \Leftrightarrow (k4\_nat\_d X0 X2 = k4\_nat\_d X1 \\ X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\ (v7\_ordinal1 X2) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 k6\_numbers) \wedge ((v1\_int\_2 \\ X1) \wedge ((r1\_int\_2 X1 X2) \wedge (r1\_nat\_d X1 (k4\_nat\_d X2 (k1\_newton X1 X0)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (((r1\_xxreal\_0 \\ X0 X1) \wedge (v2\_xxreal\_0 X0)) \Rightarrow (v2\_xxreal\_0 X1))) \quad (4)$$

Assume the following.

$$m1\_subset\_1 \ k1\_xboole\_0 \ k4\_ordinal1 \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.(v7\_ordinal1 \ X0) \Rightarrow (\forall X1.(v7\_ordinal1 \ X1) \Rightarrow (\forall X2. \\ & (v7\_ordinal1 \ X2) \Rightarrow (\neg(\neg r1\_xreal\_0 \ X0 \ k6\_numbers) \wedge ((\neg r1\_xreal\_0 \\ & X1 \ k6\_numbers) \wedge (k4\_nat\_d \ (k3\_xcmplx\_0 \ X1 \ X2) \ (k1\_newton \ X1 \ X0) \neq \\ & k3\_xcmplx\_0 \ X1 \ (k4\_nat\_d \ X2 \ (k1\_newton \ X1 \ (k7\_nat\_d \ X0 \ np\_1)))))))))) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & ((v2\_xreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \tag{7}$$

Assume the following.

$$(m2\_subset\_1 \ np\_0 \ k1\_numbers \ k5\_numbers) \wedge ((m1\_subset\_1 \ np\_0 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_0 \ k1\_numbers)) \tag{8}$$

Assume the following.

$$k4\_xcmplx\_0 \ np\_0 = np\_0 \tag{9}$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \tag{10}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 \ X0) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (v7\_ordinal1 \ (k1\_newton \ X0 \ X1)) \tag{12}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v3\_xreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X0)) \wedge \\ & ((\neg v2\_xreal\_0 \ X1) \wedge (v1\_xreal\_0 \ X1))) \Rightarrow (\neg v2\_xreal\_0 \ (k7\_xcmplx\_0 \\ & X0 \ X1)) \end{aligned} \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 \ X0) \wedge (v7\_ordinal1 \ X1)) \Rightarrow (v7\_ordinal1 \ (k3\_xcmplx\_0 \ X0 \ X1)) \tag{14}$$

Assume the following.

$$\forall X0.(v1\_int\_1 \ X0) \Rightarrow (v7\_ordinal1 \ (k3\_square\_1 \ X0)) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v1\_xboole\_0 X0)\wedge(v7\_ordinal1 X0))\wedge(v7\_ordinal1 X1))\Rightarrow(\neg v1\_xboole\_0 (k1\_newton X0 X1)) \quad (16)$$

Assume the following.

$$\forall X0.((\neg v3\_xxreal\_0 X0)\wedge(v1\_xreal\_0 X0))\Rightarrow((v1\_xcmplx\_0 (k4\_xcmplx\_0 X0))\wedge(\neg v2\_xxreal\_0 (k4\_xcmplx\_0 X0))) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0)\wedge(v7\_ordinal1 X1))\Rightarrow(m1\_subset\_1 (k7\_nat\_d X0 X1) k5\_numbers) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.((v7\_ordinal1 X0)\wedge(v7\_ordinal1 X1))\Rightarrow(m1\_subset\_1 (k4\_nat\_d X0 X1) k5\_numbers) \quad (19)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(\forall X1.(v7\_ordinal1 X1)\Rightarrow((r1\_nat\_d X0 X1)\Leftrightarrow(\exists X2.(v7\_ordinal1 X2)\wedge(X1 = k3\_xcmplx\_0 X0 X2)))) \quad (20)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0)\wedge((\neg v2\_xxreal\_0 X0)\wedge(\neg v3\_xxreal\_0 X0)))\Rightarrow((v1\_xboole\_0 X0)\wedge(v1\_xxreal\_0 X0)) \quad (21)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (22)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0)\Rightarrow(v7\_ordinal1 X0) \quad (23)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xxreal\_0 X0) \quad (24)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xcmplx\_0 X0) \quad (25)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow((v7\_ordinal1 X0)\wedge(\neg v3\_xxreal\_0 X0)) \quad (26)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0)\Rightarrow(v1\_xreal\_0 X0) \quad (27)$$

Assume the following.

$$\forall X0.((v7\_ordinal1 X0)\wedge(v1\_int\_2 X0))\Rightarrow((\neg v1\_xboole\_0 X0)\wedge((v7\_ordinal1 X0)\wedge(v1\_int\_2 X0))) \quad (28)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow (\forall X2. \\ & (v7\_ordinal1\ X2) \Rightarrow (((v1\_int\_2\ X1) \wedge (r1\_int\_2\ X1\ X2)) \Rightarrow ((r1\_xreal\_0 \\ & X0\ k6\_numbers) \vee (\forall X3.(v1\_int\_1\ X3) \Rightarrow (k6\_int\_1\ (k6\_xcmplx\_0 \\ & (k3\_xcmplx\_0\ X1\ (k3\_square\_1\ X3))\ X2)\ (k1\_newton\ X1\ X0) \neq k6\_numbers)))))) \end{aligned}$$