

## t83\_rinfsup1

(TMRLb3UwBizc4jHbtcyQSRejTEiNwy2W1Kt)

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_comseq\_2 : \iota \Rightarrow o$  be given. Let  $k6\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k1\_rinfsup1 : \iota \Rightarrow \iota$  be given. Let  $k3\_rinfsup1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
 & X1 k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
 & k5\_numbers k1\_numbers)))))) \Rightarrow ((v1\_comseq\_2 X1) \Rightarrow ((r1\_xxreal\_0 \\
 & X0 (k6\_rinfsup1 X1)) \Leftrightarrow (\forall X2.(v1\_xreal\_0 X2) \Rightarrow (\neg(\neg r1\_xxreal\_0 \\
 & X2 k6\_numbers) \wedge (\forall X3.(m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow \\
 & (\exists X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \wedge (r1\_xxreal\_0 \\
 & (k1\_seq\_1 X1 (k2\_nat\_1 X3 X4)) (k6\_xcmplx\_0 X0 X2))))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\
 & X1 k5\_numbers k1\_numbers) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
 & k5\_numbers k1\_numbers)))))) \Rightarrow ((v1\_comseq\_2 X1) \Rightarrow ((r1\_xxreal\_0 \\
 & (k6\_rinfsup1 X1) X0) \Leftrightarrow (\forall X2.(v1\_xreal\_0 X2) \Rightarrow ((\neg r1\_xxreal\_0 \\
 & X2 k6\_numbers) \Rightarrow (\forall X3.(m2\_subset\_1 X3 k1\_numbers k5\_numbers) \Rightarrow \\
 & (\neg \forall X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow (r1\_xxreal\_0 \\
 & (k2\_xcmplx\_0 X0 X2) (k1\_seq\_1 X1 (k2\_nat\_1 X3 X4))))))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.(v1\_xxreal\_0 X0) \Rightarrow (\forall X1.(v1\_xxreal\_0 X1) \Rightarrow (( \\
 & (r1\_xxreal\_0 X0 X1) \wedge (r1\_xxreal\_0 X1 X0)) \Rightarrow (X0 = X1)))
 \end{aligned} \tag{3}$$

Assume the following.

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

Assume the following.

$$\forall X0.((v1\_funct\_1 X0)\wedge((v1\_funct\_2 X0 k5\_numbers k1\_numbers)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers))))))\Rightarrow(m1\_subset\_1 (k6\_rinf sup1 X0) k1\_numbers) \quad (5)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0)\wedge((v1\_funct\_2 X0 k5\_numbers k1\_numbers)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers))))))\Rightarrow(k6\_rinf sup1 X0 = k1\_rinf sup1 (k3\_rinf sup1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xxreal\_0 X0) \quad (7)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0)\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 \\ & X1 k5\_numbers k1\_numbers)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & k5\_numbers k1\_numbers))))))\Rightarrow((v1\_comseq\_2 X1)\Rightarrow((X0 = k6\_rinf sup1 \\ & X1)\Leftrightarrow(\forall X2.(v1\_xreal\_0 X2)\Rightarrow((\neg r1\_xxreal\_0 X2 k6\_numbers)\Rightarrow \\ & ((\forall X3.(m2\_subset\_1 X3 k1\_numbers k5\_numbers)\Rightarrow(\neg\forall X4. \\ & (m2\_subset\_1 X4 k1\_numbers k5\_numbers)\Rightarrow(r1\_xxreal\_0 (k2\_xcmplx\_0 \\ & X0 X2) (k1\_seq\_1 X1 (k2\_nat\_1 X3 X4))))))\wedge(\exists X3.(m2\_subset\_1 \\ & X3 k1\_numbers k5\_numbers)\wedge(\forall X4.(m2\_subset\_1 X4 k1\_numbers \\ & k5\_numbers)\Rightarrow(\neg r1\_xxreal\_0 (k1\_seq\_1 X1 (k2\_nat\_1 X3 X4) (k6\_xcmplx\_0 \\ & X0 X2)))))))))) \end{aligned}$$