

t69\_comseq\_3 (TM-  
PUaprY6b9DbsBXiYfjUVdWJzBCkW136jx)

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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  $k2\_numbers : \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_power : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k55\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_comseq\_2 : \iota \Rightarrow o$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_seq\_2 : \iota \Rightarrow \iota$  be given. Let  $v2\_comseq\_3 : \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_series\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $v1\_membered : \iota \Rightarrow o$  be given. Let  $k54\_valued\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_valued\_0 : \iota \Rightarrow o$  be given. Let  $v1\_comseq\_3 : \iota \Rightarrow o$  be given. Let  $k17\_complex1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& (\forall X1.((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& (((\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow ((r1\_xreal\_0 \\
& k6\_numbers (k3\_funct\_2 k5\_numbers k1\_numbers X0 X2)) \wedge (k3\_funct\_2 \\
& k5\_numbers k1\_numbers X1 X2 = k2\_power X2 (k3\_funct\_2 k5\_numbers \\
& k1\_numbers X0 X2)))) \wedge (v2\_comseq\_2 X1)) \Rightarrow ((r1\_xreal\_0 np\_1 ( \\
& k2\_seq\_2 X1)) \vee (v1\_series\_1 X0)))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 k5\_numbers X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers X0))))))\wedge(v7\_ordinal1 X2))\Rightarrow(k8\_nat\_1 X0 X1 X2 = k1\_funct\_1 X1 X2) \quad (3)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_membered X1)\wedge((v1\_funct\_1 X2)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\Rightarrow(k55\_valued\_1 X0 X1 X2 = k54\_valued\_1 X2) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge(((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\wedge(m1\_subset\_1 X3 X0)))\Rightarrow(k3\_funct\_2 X0 X1 X2 X3 = k1\_funct\_1 X2 X3) \quad (6)$$

Assume the following.

$$\exists X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k2\_numbers)))\wedge((v1\_relat\_1 X0)\wedge((v4\_relat\_1 X0 k5\_numbers)\wedge((v5\_relat\_1 X0 k2\_numbers)\wedge((v1\_funct\_1 X0)\wedge((\neg v1\_xboole\_0 X0)\wedge((v1\_partfun1 X0 k5\_numbers)\wedge((v1\_funct\_2 X0 k5\_numbers k2\_numbers)\wedge((v1\_valued\_0 X0)\wedge(v1\_comseq\_3 X0)))))))))) \quad (7)$$

Assume the following.

$$\forall X0.((v1\_funct\_1 X0)\wedge((v1\_funct\_2 X0 k5\_numbers k2\_numbers)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k2\_numbers))))))\Rightarrow(\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers)\Rightarrow((k17\_complex1 (k8\_nat\_1 k2\_numbers X0 X1) = k8\_nat\_1 k1\_numbers (k55\_valued\_1 k5\_numbers k2\_numbers X0) X1)\wedge(r1\_xxreal\_0 k6\_numbers (k8\_nat\_1 k1\_numbers (k55\_valued\_1 k5\_numbers k2\_numbers X0) X1)))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X1)\wedge(v1\_membered X1))\wedge((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))))))\Rightarrow((v1\_funct\_1 (k54\_valued\_1 X2))\wedge(v1\_partfun1 (k54\_valued\_1 X2) X0)) \quad (9)$$

Assume the following.

$$\neg v1\_xboole\_0 k2\_numbers \quad (10)$$

Assume the following.

$$\neg v1\_xboole\_0 \ k1\_numbers \quad (11)$$

Assume the following.

$$v1\_membered \ k2\_numbers \quad (12)$$

Assume the following.

$$m1\_subset\_1 \ k5\_numbers \ (k1\_zfmisc\_1 \ k1\_numbers) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((v1\_membered \ X1)\wedge((v1\_funct\_1 \\ & X2)\wedge(m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X1))))\Rightarrow((v1\_funct\_1 \\ & (k55\_valued\_1 \ X0 \ X1 \ X2))\wedge(m1\_subset\_1 \ (k55\_valued\_1 \ X0 \ X1 \ X2) \ ( \\ & k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ k1\_numbers)))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_funct\_1 \ X0)\wedge((v1\_funct\_2 \ X0 \ k5\_numbers \ k2\_numbers)\wedge \\ & (m1\_subset\_1 \ X0 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ k2\_numbers))))\Rightarrow \\ & ((v2\_comseq\_3 \ X0)\Leftrightarrow(v1\_series\_1 \ (k55\_valued\_1 \ k5\_numbers \ k2\_numbers \\ & X0))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k4\_ordinal1)\Rightarrow(v7\_ordinal1 \ X0) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_xboole\_0 \ X0)\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ X0 \ X1)))\Rightarrow(v1\_xboole\_0 \ X2)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 \ X2 \ (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 \ X0 \ X1)))\Rightarrow((v1\_partfun1 \ X2 \ X0)\Rightarrow(v1\_funct\_2 \ X2 \ X0 \ X1)) \end{aligned} \quad (18)$$

### Theorem 1

$$\begin{aligned} & \forall X0.((v1\_funct\_1 \ X0)\wedge((v1\_funct\_2 \ X0 \ k5\_numbers \ k1\_numbers)\wedge \\ & (m1\_subset\_1 \ X0 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ k1\_numbers))))\Rightarrow \\ & (\forall X1.((v1\_funct\_1 \ X1)\wedge((v1\_funct\_2 \ X1 \ k5\_numbers \ k2\_numbers)\wedge \\ & (m1\_subset\_1 \ X1 \ (k1\_zfmisc\_1 \ (k2\_zfmisc\_1 \ k5\_numbers \ k2\_numbers))))\Rightarrow \\ & (((\forall X2.(m2\_subset\_1 \ X2 \ k1\_numbers \ k5\_numbers)\Rightarrow(k8\_nat\_1 \\ & k1\_numbers \ X0 \ X2 = k2\_power \ X2 \ (k8\_nat\_1 \ k1\_numbers \ (k55\_valued\_1 \\ & k5\_numbers \ k2\_numbers \ X1) \ X2)))\wedge(v2\_comseq\_2 \ X0))\Rightarrow((r1\_xreal\_0 \\ & np\_1 \ (k2\_seq\_2 \ X0))\vee(v2\_comseq\_3 \ X1)))) \end{aligned}$$