

# t20\_sin\_cos (TM- NVi6JcuPcgy2mMvCdbdVggikgALqWYtyZ)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_numbers : \iota$  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  $k18\_complex1 : \iota \Rightarrow \iota$  be given. Let  $k8\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_series\_1 : \iota \Rightarrow \iota$  be given. Let  $k55\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_sin\_cos : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k9\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge ((v1\_funct\_2 X0 k5\_numbers k1\_numbers) \wedge \\
& (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k1\_numbers)))))) \Rightarrow \\
& ((\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (r1\_xxreal\_0 \\
& k6\_numbers (k8\_nat\_1 k1\_numbers X0 X1))) \Rightarrow ((\forall X1.(m2\_subset\_1 \\
& X1 k1\_numbers k5\_numbers) \Rightarrow (\forall X2.(m2\_subset\_1 X2 k1\_numbers \\
& k5\_numbers) \Rightarrow ((r1\_xxreal\_0 X1 X2) \Rightarrow (k18\_complex1 (k9\_real\_1 ( \\
& k8\_nat\_1 k1\_numbers (k3\_series\_1 X0) X2) (k8\_nat\_1 k1\_numbers \\
& (k3\_series\_1 X0) X1)) = k9\_real\_1 (k8\_nat\_1 k1\_numbers (k3\_series\_1 \\
& X0) X2) (k8\_nat\_1 k1\_numbers (k3\_series\_1 X0) X1)))))) \wedge (\forall X1. \\
& (m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (k18\_complex1 (k8\_nat\_1 \\
& k1\_numbers (k3\_series\_1 X0) X1) = k8\_nat\_1 k1\_numbers (k3\_series\_1 \\
& X0) X1))))
\end{aligned} \tag{1}$$

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.

$$\forall X0.\forall X1.\forall X2.((v1\_membered\ X1)\wedge((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow(k55\_valued\_1\ X0\ X1\ X2 = k54\_valued\_1\ X2) \quad (3)$$

Assume the following.

$$\exists X0.(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k2\_numbers)))\wedge((v1\_relat\_1\ X0)\wedge((v4\_relat\_1\ X0\ k5\_numbers)\wedge((v5\_relat\_1\ X0\ k2\_numbers)\wedge((v1\_funct\_1\ X0)\wedge((\neg v1\_xboole\_0\ X0)\wedge((v1\_partfun1\ X0\ k5\_numbers)\wedge((v1\_funct\_2\ X0\ k5\_numbers\ k2\_numbers)\wedge((v1\_valued\_0\ X0)\wedge(v1\_comseq\_3\ X0)))))))))) \quad (4)$$

Assume the following.

$$\forall X0.((v1\_funct\_1\ X0)\wedge((v1\_funct\_2\ X0\ k5\_numbers\ k2\_numbers)\wedge(m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ k2\_numbers))))))\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ k1\_numbers\ k5\_numbers)\Rightarrow((k17\_complex1\ (k8\_nat\_1\ k2\_numbers\ X0\ X1) = k8\_nat\_1\ k1\_numbers\ (k55\_valued\_1\ k5\_numbers\ k2\_numbers\ X0)\ X1)\wedge(r1\_xreal\_0\ k6\_numbers\ (k8\_nat\_1\ k1\_numbers\ (k55\_valued\_1\ k5\_numbers\ k2\_numbers\ X0)\ X1)))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0\ X1)\wedge(v1\_membered\ X1))\wedge((v1\_funct\_1\ X2)\wedge((v1\_funct\_2\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow((v1\_funct\_1\ (k54\_valued\_1\ X2))\wedge(v1\_partfun1\ (k54\_valued\_1\ X2)\ X0)) \quad (6)$$

Assume the following.

$$\neg v1\_xboole\_0\ k2\_numbers \quad (7)$$

Assume the following.

$$\neg v1\_xboole\_0\ k1\_numbers \quad (8)$$

Assume the following.

$$v1\_membered\ k2\_numbers \quad (9)$$

Assume the following.

$$m1\_subset\_1\ k5\_numbers\ (k1\_zfmisc\_1\ k1\_numbers) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_membered\ X1)\wedge((v1\_funct\_1\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))))\Rightarrow((v1\_funct\_1\ (k55\_valued\_1\ X0\ X1\ X2))\wedge(m1\_subset\_1\ (k55\_valued\_1\ X0\ X1\ X2)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ k1\_numbers)))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X0 k2\_numbers)\wedge \\ & ((m1\_subset\_1 X1 k2\_numbers)\wedge(m1\_subset\_1 X2 k5\_numbers)))\Rightarrow \\ & ((v1\_funct\_1 (k12\_sin\_cos X0 X1 X2))\wedge((v1\_funct\_2 (k12\_sin\_cos \\ & X0 X1 X2) k5\_numbers k2\_numbers)\wedge(m1\_subset\_1 (k12\_sin\_cos X0 \\ & X1 X2) (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers k2\_numbers)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(v1\_xboole\_0 X0)\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_xboole\_0 X2)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v1\_partfun1 X2 X0)\Rightarrow(v1\_funct\_2 X2 X0 X1)) \end{aligned} \quad (14)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 k2\_numbers)\Rightarrow(\forall X1.(m1\_subset\_1 \\ & X1 k2\_numbers)\Rightarrow(\forall X2.(m2\_subset\_1 X2 k1\_numbers k5\_numbers)\Rightarrow \\ & (\forall X3.(m2\_subset\_1 X3 k1\_numbers k5\_numbers)\Rightarrow(k18\_complex1 \\ & (k8\_nat\_1 k1\_numbers (k3\_series\_1 (k55\_valued\_1 k5\_numbers k2\_numbers \\ & (k12\_sin\_cos X0 X1 X2))) X3) = k8\_nat\_1 k1\_numbers (k3\_series\_1 \\ & (k55\_valued\_1 k5\_numbers k2\_numbers (k12\_sin\_cos X0 X1 X2))) X3)))) \end{aligned}$$