

## l32\_sin\_cos8

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_sin\_cos2 : \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_0 : \iota$  be given. Let  $k4\_xcmplx\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_sin\_cos2 : \iota \Rightarrow \iota$  be given. Let  $k3\_sin\_cos2 : \iota \Rightarrow \iota$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_sin\_cos2 : \iota$  be given. Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (v3\_xxreal\_0 X1)) \Rightarrow (v3\_xxreal\_0 X0))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (((r1\_xxreal\_0 X0 X1) \wedge (v2\_xxreal\_0 X0)) \Rightarrow (v2\_xxreal\_0 X1))) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\forall X2. \\ (v1\_xreal\_0 X2) \Rightarrow (\forall X3.(v1\_xreal\_0 X3) \Rightarrow (((r1\_xxreal\_0 \\ X0 X1) \wedge (r1\_xxreal\_0 X2 X3)) \Rightarrow (r1\_xxreal\_0 (k6\_xcmplx\_0 X0 X3) ( \\ k6\_xcmplx\_0 X1 X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\ ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_1) \wedge (m2\_subset\_1 \ np\_1 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_1 \ k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$(m2\_subset\_1 \ np\_0 \ k1\_numbers \ k5\_numbers) \wedge ((m1\_subset\_1 \ np\_0 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_0 \ k1\_numbers)) \quad (7)$$

Assume the following.

$$v1\_xboole\_0 \ np\_0 \quad (8)$$

Assume the following.

$$k4\_xcmplx\_0 \ np\_0 = np\_0 \quad (9)$$

Assume the following.

$$k6\_xcmplx\_0 \ np\_1 \ np\_1 = np\_0 \quad (10)$$

Assume the following.

$$r1\_xxreal\_0 \ np\_1 \ np\_1 \quad (11)$$

Assume the following.

$$\forall X0. k6\_sin\_cos2 \ X0 = k5\_sin\_cos2 \ X0 \quad (12)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_xreal\_0 \ X0) \Rightarrow ((r1\_xxreal\_0 \ np\_1 \ (k6\_sin\_cos2 \\ & X0)) \wedge ((k6\_sin\_cos2 \ k6\_numbers = np\_1) \wedge (k3\_sin\_cos2 \ k6\_numbers = \\ & k6\_numbers))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_xreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X1)) \Rightarrow (v1\_xreal\_0 \ (k2\_xcmplx\_0 \ X0 \ X1)) \quad (15)$$

Assume the following.

$$\forall X0. ((\neg v3\_xxreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X0)) \Rightarrow ((v1\_xcmplx\_0 \ (k4\_xcmplx\_0 \ X0)) \wedge (\neg v2\_xxreal\_0 \ (k4\_xcmplx\_0 \ X0))) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v2\_xxreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X0)) \wedge \\ & (\neg v3\_xxreal\_0 \ X1) \wedge (v1\_xreal\_0 \ X1)) \Rightarrow (v2\_xxreal\_0 \ (k2\_xcmplx\_0 \ X1 \ X0)) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.(((v2\_xxreal\_0 X0)\wedge(v1\_xreal\_0 X0))\wedge(-v3\_xxreal\_0 X1)\wedge(v1\_xreal\_0 X1))\Rightarrow(v2\_xxreal\_0 (k2\_xcmplx\_0 X0 X1)) \quad (18)$$

Assume the following.

$$\forall X0.m1\_subset\_1 (k6\_sin\_cos2 X0) k1\_numbers \quad (19)$$

Assume the following.

$$\forall X0.k5\_sin\_cos2 X0 = k1\_seq\_1 k4\_sin\_cos2 X0 \quad (20)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers)\Rightarrow(-v3\_xxreal\_0 X0) \quad (21)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (22)$$

**Theorem 1**

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(((r1\_xxreal\_0 (k2\_xcmplx\_0 (k6\_sin\_cos2 X0) np\_1) k6\_numbers)\wedge((r1\_xxreal\_0 k6\_numbers (k6\_xcmplx\_0 (k6\_sin\_cos2 X0) np\_1))\wedge(k2\_xcmplx\_0 (k2\_xcmplx\_0 (k6\_sin\_cos2 X0) np\_2) (k6\_sin\_cos2 X0)\neq k6\_numbers)))$$