

# l32\_nat\_4 (TMPtVD- bKmUV9W7gk3xQ8znjV4L3UgAtGaAK)

October 27, 2020

Let  $v1\_int\_2 : \iota \Rightarrow o$  be given. Let  $np\_6 : \iota$  be given. Let  $np\_8 : \iota$  be given. Let  $np\_9 : \iota$  be given. Let  $np\_10 : \iota$  be given. Let  $np\_12 : \iota$  be given. Let  $np\_14 : \iota$  be given. Let  $np\_15 : \iota$  be given. Let  $np\_16 : \iota$  be given. Let  $np\_18 : \iota$  be given. Let  $np\_20 : \iota$  be given. Let  $np\_21 : \iota$  be given. Let  $np\_22 : \iota$  be given. Let  $np\_24 : \iota$  be given. Let  $np\_25 : \iota$  be given. Let  $np\_26 : \iota$  be given. Let  $np\_27 : \iota$  be given. Let  $np\_28 : \iota$  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  $np\_7 : \iota$  be given. Let  $np\_5 : \iota$  be given. Let  $np\_4 : \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $np\_13 : \iota$  be given. Let  $np\_11 : \iota$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_nat\_d : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_int\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_9) \wedge (m2\_subset\_1 \ np\_9 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_9 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_9 \ k1\_numbers)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_8) \wedge (m2\_subset\_1 \ np\_8 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_8 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_8 \ k1\_numbers)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_7) \wedge (m2\_subset\_1 \ np\_7 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_7 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_7 \ k1\_numbers)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_6) \wedge (m2\_subset\_1 \ np\_6 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_6 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_6 \ k1\_numbers)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_5) \wedge (m2\_subset\_1 \ np\_5 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_5 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_5 \ k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_4) \wedge (m2\_subset\_1 \ np\_4 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_4 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_4 \ k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_3) \wedge (m2\_subset\_1 \ np\_3 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_3 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_3 \ k1\_numbers)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_2) \wedge (m2\_subset\_1 \ np\_2 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_2 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_2 \ k1\_numbers)) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_28) \wedge (m2\_subset\_1 \ np\_28 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_28 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_28 \ k1\_numbers)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_27) \wedge (m2\_subset\_1 \ np\_27 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_27 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_27 \ k1\_numbers)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_26) \wedge (m2\_subset\_1 \ np\_26 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_26 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_26 \ k1\_numbers)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_25) \wedge (m2\_subset\_1 \ np\_25 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_25 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_25 \ k1\_numbers)) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_24) \wedge (m2\_subset\_1 \ np\_24 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_24 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_24 \ k1\_numbers)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_22) \wedge (m2\_subset\_1 \ np\_22 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_22 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_22 \ k1\_numbers)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_21) \wedge (m2\_subset\_1 \ np\_21 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_21 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_21 \ k1\_numbers)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_20) \wedge (m2\_subset\_1 \ np\_20 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_20 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_20 \ k1\_numbers)) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_18) \wedge (m2\_subset\_1 \ np\_18 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_18 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_18 \ k1\_numbers)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_16) \wedge (m2\_subset\_1 \ np\_16 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_16 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_16 \ k1\_numbers)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_15) \wedge (m2\_subset\_1 \ np\_15 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_15 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_15 \ k1\_numbers)) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_14) \wedge (m2\_subset\_1 \ np\_14 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_14 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_14 \ k1\_numbers)) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_13) \wedge (m2\_subset\_1 \ np\_13 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_13 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_13 \ k1\_numbers)) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_12) \wedge (m2\_subset\_1 \ np\_12 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_12 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_12 \ k1\_numbers)) \end{aligned} \quad (22)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_11) \wedge (m2\_subset\_1 \ np\_11 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_11 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_11 \ k1\_numbers)) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 \ np\_10) \wedge (m2\_subset\_1 \ np\_10 \ k1\_numbers \ k5\_numbers)) \wedge \\ & ((m1\_subset\_1 \ np\_10 \ k5\_numbers) \wedge (m1\_subset\_1 \ np\_10 \ k1\_numbers)) \end{aligned} \quad (24)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_9 \ np\_3 = np\_27 \quad (25)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_6 \ np\_4 = np\_24 \quad (26)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_6 \ np\_3 = np\_18 \quad (27)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_5 \ np\_5 = np\_25 \quad (28)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_4 \ np\_7 = np\_28 \quad (29)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_4 \ np\_5 = np\_20 \quad (30)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_4 \ np\_4 = np\_16 \quad (31)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_3 \ np\_7 = np\_21 \quad (32)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_3 \ np\_5 = np\_15 \quad (33)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_3 \ np\_4 = np\_12 \quad (34)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_3 \ np\_3 = np\_9 \quad (35)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_2 \ np\_7 = np\_14 \quad (36)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_2 \ np\_5 = np\_10 \quad (37)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_2 \ np\_4 = np\_8 \quad (38)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_2 \ np\_3 = np\_6 \quad (39)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_13 \ np\_2 = np\_26 \quad (40)$$

Assume the following.

$$k3\_xcmplx\_0 \ np\_11 \ np\_2 = np\_22 \quad (41)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v7\_ordinal1 \ X0)\wedge(v7\_ordinal1 \ X1))\Rightarrow( \\ (r1\_nat\_d \ X0 \ X1)\Leftrightarrow(r1\_int\_1 \ X0 \ X1)) \end{aligned} \quad (42)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (43)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 \ X0)\Rightarrow((v1\_int\_2 \ X0)\Leftrightarrow((\neg r1\_xxreal\_0 \ X0 \\ np\_1)\wedge(\forall X1.(v7\_ordinal1 \ X1)\Rightarrow(\neg(r1\_int\_1 \ X1 \ X0)\wedge((X1\neq \\ np\_1)\wedge(X1\neq X0)))))) \end{aligned} \quad (44)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7\_ordinal1 \ X0)\Rightarrow(\forall X1.(v7\_ordinal1 \ X1)\Rightarrow(( \\ r1\_nat\_d \ X0 \ X1)\Leftrightarrow(\exists X2.(v7\_ordinal1 \ X2)\wedge(X1 = k3\_xcmplx\_0 \\ X0 \ X2)))) \end{aligned} \quad (45)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 \ X0 \ k4\_ordinal1)\Rightarrow(v7\_ordinal1 \ X0) \quad (46)$$

**Theorem 1**

$$\begin{aligned} (\neg v1\_int\_2 \ np\_6)\wedge((\neg v1\_int\_2 \ np\_8)\wedge((\neg v1\_int\_2 \ np\_9)\wedge(( \\ \neg v1\_int\_2 \ np\_10)\wedge((\neg v1\_int\_2 \ np\_12)\wedge((\neg v1\_int\_2 \ np\_14)\wedge \\ ((\neg v1\_int\_2 \ np\_15)\wedge((\neg v1\_int\_2 \ np\_16)\wedge((\neg v1\_int\_2 \ np\_18)\wedge \\ ((\neg v1\_int\_2 \ np\_20)\wedge((\neg v1\_int\_2 \ np\_21)\wedge((\neg v1\_int\_2 \ np\_22)\wedge \\ ((\neg v1\_int\_2 \ np\_24)\wedge((\neg v1\_int\_2 \ np\_25)\wedge((\neg v1\_int\_2 \ np\_26)\wedge \\ ((\neg v1\_int\_2 \ np\_27)\wedge(\neg v1\_int\_2 \ np\_28)))))))))))))) \end{aligned}$$