

t18\_absvalue  
(TMMY2gHfy1jqxQ5U4cYMkBKrzTtqHzcjbL7)

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

$$\forall X0. \forall X1. \neg(v1\_xboole\_0 X0) \wedge ((X0 \neq X1) \wedge (v1\_xboole\_0 X1)) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (v1\_xreal\_0 X1) \Rightarrow (\forall X2. \\ (v1\_xreal\_0 X2) \Rightarrow (\neg(\neg r1\_xxreal\_0 k6\_numbers X0) \wedge ((\neg r1\_xxreal\_0 \\ X2 X1) \wedge (r1\_xxreal\_0 (k3\_xcmplx\_0 X1 X0) (k3\_xcmplx\_0 X2 X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (v1\_xreal\_0 X1) \Rightarrow (\forall X2. \\ (v1\_xreal\_0 X2) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 k6\_numbers) \wedge ((\neg r1\_xxreal\_0 \\ X2 X1) \wedge (r1\_xxreal\_0 (k3\_xcmplx\_0 X2 X0) (k3\_xcmplx\_0 X1 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (v1\_xreal\_0 X1) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee ((v3\_xxreal\_0 X0) \vee (v2\_xxreal\_0 X1)))))) \quad (5)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(r1\_xxreal\_0 X0 X1) \wedge ((\neg v2\_xxreal\_0 X1) \wedge (v2\_xxreal\_0 X0)))) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 X0 \ k6\_numbers = k6\_numbers) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_xcmplx\_0 X0) \wedge ((v1\_xcmplx\_0 X1) \wedge (v1\_xcmplx\_0 X2))) \Rightarrow (k3\_xcmplx\_0 (k3\_xcmplx\_0 X0 X1) X2 = k3\_xcmplx\_0 X0 (k3\_xcmplx\_0 X1 X2)) \quad (8)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 X0 (k4\_xcmplx\_0 np\_1) = k4\_xcmplx\_0 X0) \quad (9)$$

Assume the following.

$$((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 \ k1\_numbers \ k5\_numbers)) \wedge ((m1\_subset\_1 np\_1 \ k5\_numbers) \wedge (m1\_subset\_1 np\_1 \ k1\_numbers)) \quad (10)$$

Assume the following.

$$(m2\_subset\_1 np\_0 \ k1\_numbers \ k5\_numbers) \wedge ((m1\_subset\_1 np\_0 \ k5\_numbers) \wedge (m1\_subset\_1 np\_0 \ k1\_numbers)) \quad (11)$$

Assume the following.

$$v1\_xboole\_0 np\_0 \quad (12)$$

Assume the following.

$$k4\_xcmplx\_0 (k4\_xcmplx\_0 np\_1) = np\_1 \quad (13)$$

Assume the following.

$$k3\_xcmplx\_0 np\_1 \ np\_1 = np\_1 \quad (14)$$

Assume the following.

$$k6\_xcmplx\_0 np\_2 \ np\_2 = np\_0 \quad (15)$$

Assume the following.

$$k6\_xcmplx\_0 np\_0 \ np\_1 = k4\_xcmplx\_0 np\_1 \quad (16)$$

Assume the following.

$$r1\_xxreal\_0 np\_0 \ np\_0 \quad (17)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (18)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (k1\_real\_1 X0 = k4\_xcmplx\_0 X0) \quad (19)$$

Assume the following.

$$\exists X0.(v1\_xboole\_0 X0) \wedge (v1\_xxreal\_0 X0) \quad (20)$$

Assume the following.

$$\exists X0.(v1\_xboole\_0 X0) \wedge ((v1\_xcmplx\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (v1\_xreal\_0 X0))) \quad (21)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (k1\_absvalue (k1\_absvalue X0) = k1\_absvalue X0) \quad (22)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k4\_xcmplx\_0 (k4\_xcmplx\_0 X0) = X0) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow (v1\_xreal\_0 (k6\_xcmplx\_0 X0 X1)) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xreal\_0 X0) \wedge (v1\_xreal\_0 X1)) \Rightarrow (v1\_xreal\_0 (k3\_xcmplx\_0 X0 X1)) \quad (25)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow ((v1\_xcmplx\_0 (k4\_xcmplx\_0 X0)) \wedge (v1\_xreal\_0 (k4\_xcmplx\_0 X0))) \quad (26)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_int\_1 X0) \wedge (v1\_int\_1 X1)) \Rightarrow (v1\_int\_1 (k3\_xcmplx\_0 X0 X1)) \quad (27)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow ((v1\_xreal\_0 (k1\_absvalue X0)) \wedge (v1\_int\_1 (k1\_absvalue X0))) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (v1\_xreal\_0 (k1\_absvalue X0)) \quad (29)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_xreal\_0 X0) \Rightarrow (& ((\neg r1\_xxreal\_0 X0 k6\_numbers) \Rightarrow ( \\ k1\_absvalue X0 = np\_1)) \wedge (& ((\neg r1\_xxreal\_0 k6\_numbers X0) \Rightarrow (k1\_absvalue \\ X0 = k1\_real\_1 np\_1)) \wedge (& ((r1\_xxreal\_0 X0 k6\_numbers) \wedge (r1\_xxreal\_0 \\ k6\_numbers X0)) \Rightarrow (k1\_absvalue X0 = k6\_numbers)))) \end{aligned} \quad (30)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0 X0) \wedge (v1\_xcmplx\_0 X1)) \Rightarrow (k3\_xcmplx\_0 X0 X1 = k3\_xcmplx\_0 X1 X0) \quad (31)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v2\_xxreal\_0 X0))) \quad (32)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0) \wedge (v2\_xxreal\_0 X0)) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge ((v1\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X0))) \quad (33)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (v1\_xcmplx\_0 X0) \quad (34)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow (v1\_xreal\_0 X0) \quad (35)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (36)$$

**Theorem 1**

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (k1\_absvalue (k3\_xcmplx\_0 X0 X1) = k3\_xcmplx\_0 (k1\_absvalue X0) (k1\_absvalue X1)))$$