

# t5\_normsp\_1 (TMExCp- WRAP3AFGLBuP6xzzDb7t5SU4Hds5t)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v4\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v2\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_normsp\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_rlvect\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k18\_complex1 : \iota \Rightarrow \iota$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $k1\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l2\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. (((v2\_rlvect\_1 X0) \wedge (l1\_algstr\_0 X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0)))) \Rightarrow (k3\_rlvect\_1 X0 X1 X2 = k1\_algstr\_0 X0 X1 X2) \quad (1)$$

Assume the following.

$$\forall X0. (l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \quad (2)$$

Assume the following.

$$\forall X0. (l1\_rlvect\_1 X0) \Rightarrow (l2\_algstr\_0 X0) \quad (3)$$

Assume the following.

$$\forall X0. (l1\_normsp\_1 X0) \Rightarrow ((l1\_rlvect\_1 X0) \wedge (l2\_normsp\_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge (l1\_rlvect\_1 X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (v1\_xreal\_0 X2))) \Rightarrow (m1\_subset\_1 (k1\_rlvect\_1 X0 X1 X2) (u1\_struct\_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_normsp\_1 X0)) \Rightarrow ((v2\_normsp\_1 \\
& \quad X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& \quad (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& \quad k1\_numbers) \Rightarrow ((k1\_normsp\_0 X0 (k1\_rlvect\_1 X0 X1 X3) = k8\_real\_1 \\
& \quad (k18\_complex1 X3) (k1\_normsp\_0 X0 X1)) \wedge (r1\_xxreal\_0 (k1\_normsp\_0 \\
& \quad X0 (k1\_algstr\_0 X0 X1 X2)) (k7\_real\_1 (k1\_normsp\_0 X0 X1) (k1\_normsp\_0 \\
& \quad X0 X2)))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (\forall X1.(m1\_subset\_1 \\
& \quad X1 k1\_numbers) \Rightarrow (\forall X2.((\neg v2\_struct\_0 X2) \wedge ((v13\_algstr\_0 \\
& \quad X2) \wedge ((v2\_rlvect\_1 X2) \wedge ((v3\_rlvect\_1 X2) \wedge ((v4\_rlvect\_1 X2) \wedge \\
& \quad ((v5\_rlvect\_1 X2) \wedge ((v6\_rlvect\_1 X2) \wedge ((v7\_rlvect\_1 X2) \wedge ((v8\_rlvect\_1 \\
& \quad X2) \wedge ((v3\_normsp\_0 X2) \wedge ((v4\_normsp\_0 X2) \wedge ((v2\_normsp\_1 X2) \wedge \\
& \quad (l1\_normsp\_1 X2))))))))))))) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\
& \quad X2)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X2)) \Rightarrow (r1\_xxreal\_0 \\
& \quad (k1\_normsp\_0 X2 (k3\_rlvect\_1 X2 (k1\_rlvect\_1 X2 X3 X0) (k1\_rlvect\_1 \\
& \quad X2 X4 X1))) (k7\_real\_1 (k8\_real\_1 (k18\_complex1 X0) (k1\_normsp\_0 \\
& \quad X2 X3)) (k8\_real\_1 (k18\_complex1 X1) (k1\_normsp\_0 X2 X4)))))))))
\end{aligned}$$