

t25\_xboole\_1 (TMN-  
MGb5wgTHAnbr56WDWacaFTJkneMMFomt)

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Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.k2\_xboole\_0 (k2\_xboole\_0 X0 X1) X2 = k2\_xboole\_0 X0 (k2\_xboole\_0 X1 X2) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k2\_xboole\_0 X0 (k3\_xboole\_0 X1 X2) = k3\_xboole\_0 (k2\_xboole\_0 X0 X1) (k2\_xboole\_0 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 (k3\_xboole\_0 X0 X1) = X0 \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k3\_xboole\_0 (k3\_xboole\_0 X0 X1) X2 = k3\_xboole\_0 X0 (k3\_xboole\_0 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X0 = X0 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.k3\_xboole\_0 X0 X1 = k3\_xboole\_0 X1 X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.k2\_xboole\_0 X0 X1 = k2\_xboole\_0 X1 X0 \quad (7)$$

**Theorem 1**

$$\forall X0.\forall X1.\forall X2.k2\_xboole\_0 (k2\_xboole\_0 (k3\_xboole\_0 X0 X1) (k3\_xboole\_0 X1 X2)) (k3\_xboole\_0 X2 X0) = k3\_xboole\_0 (k3\_xboole\_0 (k2\_xboole\_0 X0 X1) (k2\_xboole\_0 X1 X2)) (k2\_xboole\_0 X2 X0)$$