

t112\_xboole\_1  
(TMTv3rSedR5wUMB3FZuu2zKyZz46e6vxtZs)

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Let  $k5\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. k3\_xboole\_0 X0 (k2\_xboole\_0 X1 X2) = k2\_xboole\_0 (k3\_xboole\_0 X0 X1) (k3\_xboole\_0 X0 X2) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. k4\_xboole\_0 (k3\_xboole\_0 X0 X1) (k3\_xboole\_0 X2 X1) = k3\_xboole\_0 (k4\_xboole\_0 X0 X2) X1 \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. k5\_xboole\_0 X0 X1 = k2\_xboole\_0 (k4\_xboole\_0 X0 X1) (k4\_xboole\_0 X1 X0) \quad (3)$$

Assume the following.

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

**Theorem 1**

$$\forall X0. \forall X1. \forall X2. k5\_xboole\_0 (k3\_xboole\_0 X0 X1) (k3\_xboole\_0 X2 X1) = k3\_xboole\_0 (k5\_xboole\_0 X0 X2) X1$$