

## t10\_card\_fin

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Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_card\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_card\_fin : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(v1\_finset\_1 X1) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (r1\_xxreal\_0 (k5\_card\_1 X0) (k5\_card\_1 X1)))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (m1\_subset\_1 (k8\_relset\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((v1\_finset\_1 X0) \wedge (v7\_ordinal1 X1)) \Rightarrow (m1\_subset\_1 (k1\_card\_fin X0 X1 X2 X3) (k1\_zfmisc\_1 (k9\_funct\_2 X0 (k2\_tarski X2 X3)))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Leftrightarrow (\forall X1.\neg X1 \in X0) \quad (5)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(v7\_ordinal1 X1) \Rightarrow (\forall X2. \\
& \quad \forall X3.\forall X4.(m1\_subset\_1 X4 (k1\_zfmisc\_1 (k9\_funct\_2 \\
& X0 (k2\_tarski X2 X3)))) \Rightarrow ((X4 = k1\_card\_fin X0 X1 X2 X3) \Leftrightarrow (\forall X5. \\
& \quad (X5 \in X4) \Leftrightarrow (\exists X6.((v1\_funct\_1 X6) \wedge ((v1\_funct\_2 X6 X0 (k2\_tarski \\
& X2 X3)) \wedge (m1\_subset\_1 X6 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 (k2\_tarski \\
& X2 X3)))))) \wedge ((X6 = X5) \wedge (k5\_card\_1 (k8\_relset\_1 X0 (k2\_tarski X2 \\
& X3) X6 (k1\_tarski X2)) = X1))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v1\_finset\_1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_finset\_1 X1)) \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(v1\_finset\_1 X2) \Rightarrow (\forall X3. \\
& (v7\_ordinal1 X3) \Rightarrow ((\neg r1\_xxreal\_0 X3 (k5\_card\_1 X2)) \Rightarrow (v1\_xboole\_0 \\
& \quad (k1\_card\_fin X2 X3 X0 X1))))
\end{aligned}$$