

# t21\_rfunct\_4 (TMRS- FzXF44kQ4bgqpGpUmDjYZ9miSnu2Mun)

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Let  $v1\_funct\_1 : \iota \Rightarrow o$  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  $k1\_numbers : \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $r6\_rfunct\_4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r8\_rfunct\_4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_fcont\_1 : \iota \Rightarrow o$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r5\_rfunct\_4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r7\_rfunct\_4 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_fcont\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\neg(X0 \in X1) \wedge ((m1\_subset\_1 X1 (k1\_zfmisc\_1 X2)) \wedge (v1\_xboole\_0 X2)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(v1\_relat\_1 X2) \Rightarrow ((X0 \in k9\_xtuple\_0 (k5\_relat\_1 X2 X1)) \Leftrightarrow ((X0 \in X1) \wedge (X0 \in k9\_xtuple\_0 X2))) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.((v1\_funct\_1 X1) \wedge (m1\_subset\_1 \\ X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \Rightarrow ((X0 \in \\ k9\_xtuple\_0 X1) \Rightarrow (((r5\_rfunc\_4 X1 X0) \wedge (r7\_rfunc\_4 X1 X0)) \Leftrightarrow ( \\ r1\_fcont\_1 X1 X0)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2) \wedge \\ (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (k2\_partfun1 \\ X0 X1 X2 X3 = k5\_relat\_1 X2 X3) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow ( \\ k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((v1\_funct\_1 X2) \wedge \\ (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((v1\_funct\_1 \\ (k2\_partfun1 X0 X1 X2 X3)) \wedge (m1\_subset\_1 (k2\_partfun1 X0 X1 X2 X3) \\ (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow ( \\ m1\_subset\_1 (k1\_relset\_1 X0 X1) (k1\_zfmisc\_1 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ k1\_numbers k1\_numbers)))) \Rightarrow (\forall X1.(r8\_rfunc\_4 X0 X1) \Leftrightarrow ( \\ (r1\_tarski X1 (k9\_xtuple\_0 X0)) \wedge (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\ ((X2 \in X1) \Rightarrow (r7\_rfunc\_4 (k2\_partfun1 k1\_numbers k1\_numbers X0 \\ X1) X2)))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ k1\_numbers k1\_numbers)))) \Rightarrow (\forall X1.(r6\_rfunc\_4 X0 X1) \Leftrightarrow ( \\ (r1\_tarski X1 (k9\_xtuple\_0 X0)) \wedge (\forall X2.(m1\_subset\_1 X2 k1\_numbers) \Rightarrow \\ ((X2 \in X1) \Rightarrow (r5\_rfunc\_4 (k2\_partfun1 k1\_numbers k1\_numbers X0 \\ X1) X2)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ k1\_numbers k1\_numbers)))) \Rightarrow ((v1\_fcont\_1 X0) \Leftrightarrow (\forall X1.(v1\_xreal\_0 \\ X1) \Rightarrow ((X1 \in k1\_relset\_1 k1\_numbers X0) \Rightarrow (r1\_fcont\_1 X0 X1)))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (14)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (16)$$

**Theorem 1**

$$\forall X0.\forall X1.((v1\_funct\_1 X1)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers))))\Rightarrow((r1\_tarski X0 (k9\_xtuple\_0 X1))\Rightarrow(((r6\_rfunct\_4 X1 X0)\wedge(r8\_rfunct\_4 X1 X0))\Leftrightarrow(v1\_fcont\_1 (k2\_partfun1 k1\_numbers k1\_numbers X1 X0))))$$