

t5_funct_9

(TMbs3CNs3CiVDHE6XZhJn8JjztEsmWMRiJE)

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Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v3_valued_0 : \iota \Rightarrow o$ be given. Let $v1_funct_9 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k50_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_xcmplx_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_valued_0 : \iota \Rightarrow o$ be given. Let $k13_complex1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 \\ & X1) \wedge (v3_valued_0 X1))) \Rightarrow ((v1_funct_9 X1 X0) \Leftrightarrow ((X0 \neq k6_numbers) \wedge \\ & (\forall X2.(v1_xreal_0 X2) \Rightarrow ((X2 \in k9_xtuple_0 X1) \Rightarrow ((k2_xcmplx_0 \\ & X2 X0 \in k9_xtuple_0 X1) \wedge ((k6_xcmplx_0 X2 X0 \in k9_xtuple_0 X1) \wedge (k1_funct_1 \\ & X1 X2 = k1_funct_1 X1 (k2_xcmplx_0 X2 X0)))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1))) \Rightarrow (\forall X2.k1_funct_1 (k50_valued_1 X0 X1) X2 = k13_complex1 \\ & (k1_funct_1 X0 X2) (k1_funct_1 X1 X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v1_valued_0 X0))) \Rightarrow \\ & (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v1_valued_0 \\ & X1))) \Rightarrow (k9_xtuple_0 (k50_valued_1 X0 X1) = k3_xboole_0 (k9_xtuple_0 \\ & X0) (k9_xtuple_0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_valued_0 \\ & X0))) \wedge ((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v3_valued_0 X1)))) \Rightarrow \\ & ((v1_relat_1 (k50_valued_1 X0 X1)) \wedge ((v1_funct_1 (k50_valued_1 \\ & X0 X1)) \wedge (v3_valued_0 (k50_valued_1 X0 X1)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k3_xboole_0 X0 X1) \Leftrightarrow (\forall X3. (X3 \in X2) \Leftrightarrow ((X3 \in X0) \wedge (X3 \in X1))) \quad (5)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0) \wedge (v3_valued_0 X0)) \Rightarrow ((v1_relat_1 X0) \wedge (v1_valued_0 X0)) \quad (6)$$

Theorem 1

$$\begin{aligned} \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v1_funct_1 X1) \wedge (v3_valued_0 X1))) \Rightarrow (\forall X2.((v1_relat_1 X2) \wedge ((v1_funct_1 X2) \wedge (v3_valued_0 X2)))) \Rightarrow (((v1_funct_9 X1 X0) \wedge (v1_funct_9 X2 X0)) \Rightarrow (v1_funct_9 (k50_valued_1 X1 X2) X0)))) \end{aligned}$$