

l45_nagata_1
(TMY8FiGCKhkGhaCUdhLq4NCf1JNd2ZSHQJT)

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Let $v1_funct.1 : \iota \Rightarrow o$ be given. Let $v1_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $m1_subset.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc.1 : \iota \Rightarrow \iota$ be given. Let $r1_nagata.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_metric.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $r1_xxreal.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_real.1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_metric.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_metric.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_metric.1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct.1 X1) \wedge (m1_subset.1 X1 (k1_zfmisc.1 \\ & (k2_zfmisc.1 (k2_zfmisc.1 X0 X0) k1_numbers)))) \Rightarrow ((v5_metric.1 \\ & X1 X0) \Leftrightarrow (\forall X2. (m1_subset.1 X2 X0) \Rightarrow (\forall X3. (m1_subset.1 \\ & X3 X0) \Rightarrow (\forall X4. (m1_subset.1 X4 X0) \Rightarrow (r1_xxreal.0 (k1_metric.1 \\ & X0 X0 X1 X2 X4) (k7_real.1 (k1_metric.1 X0 X0 X1 X2 X3) (k1_metric.1 \\ & X0 X0 X1 X3 X4))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct.1 X1) \wedge (m1_subset.1 X1 (k1_zfmisc.1 \\ & (k2_zfmisc.1 (k2_zfmisc.1 X0 X0) k1_numbers)))) \Rightarrow ((v4_metric.1 \\ & X1 X0) \Leftrightarrow (\forall X2. (m1_subset.1 X2 X0) \Rightarrow (\forall X3. (m1_subset.1 \\ & X3 X0) \Rightarrow (k1_metric.1 X0 X0 X1 X2 X3 = k1_metric.1 X0 X0 X1 X3 X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct.1 X1) \wedge (m1_subset.1 X1 (k1_zfmisc.1 \\ & (k2_zfmisc.1 (k2_zfmisc.1 X0 X0) k1_numbers)))) \Rightarrow ((v2_metric.1 \\ & X1 X0) \Leftrightarrow (\forall X2. (m1_subset.1 X2 X0) \Rightarrow (k1_metric.1 X0 X0 X1 X2 \\ & X2 = k6_numbers))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct.1 X1) \wedge ((v1_funct.2 X1 (k2_zfmisc.1 \\ & X0 X0) k1_numbers) \wedge (m1_subset.1 X1 (k1_zfmisc.1 (k2_zfmisc.1 \\ & (k2_zfmisc.1 X0 X0) k1_numbers)))))) \Rightarrow ((r1_nagata.1 X0 X1) \Leftrightarrow ((v2_metric.1 \\ & X1 X0) \wedge ((v4_metric.1 X1 X0) \wedge (v5_metric.1 X1 X0)))) \end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ & X0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) k1_numbers)))))) \Rightarrow ((r1_nagata_1 X0 X1) \Leftrightarrow (\forall X2. \\ & (m1_subset_1 X2 X0) \Rightarrow (\forall X3. (m1_subset_1 X3 X0) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 X0) \Rightarrow ((k1_metric_1 X0 X0 X1 X2 X2 = k6_numbers) \wedge (\\ & (k1_metric_1 X0 X0 X1 X2 X3 = k1_metric_1 X0 X0 X1 X3 X2) \wedge (r1_xxreal_0 \\ & (k1_metric_1 X0 X0 X1 X2 X4) (k7_real_1 (k1_metric_1 X0 X0 X1 X2 X3) \\ & (k1_metric_1 X0 X0 X1 X3 X4)))))))))) \end{aligned}$$