

l40\_taylor\_1  
(TMN3NKFF8Kf2FaU88V54o61ancmGksB2hoS)

October 27, 2020

Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. 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  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_taylor\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_rcomp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_fcont\_1 : \iota \Rightarrow o$  be given. Let  $k2\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_seqfunc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_taylor\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k2\_rcomp\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_seq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_series\_1 : \iota \Rightarrow \iota$  be given. Let  $k6\_taylor\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $r2\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_fdiff\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_real\_1 : \iota \Rightarrow \iota$  be given. Let  $k10\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_newton : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_newton : \iota \Rightarrow \iota$  be given. Assume the

following.

$$\begin{aligned}
& \forall X0.((v1\_funct\_1 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& \quad k1\_numbers k1\_numbers)))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& \quad k1\_numbers)) \Rightarrow ((r1\_tarski X1 (k1\_relset\_1 k1\_numbers X0)) \Rightarrow (\forall X2. \\
& (m2\_subset\_1 X2 k1\_numbers k5\_numbers) \Rightarrow ((r1\_taylor\_1 X0 X2 X1) \Rightarrow \\
& \quad (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& \quad X4 k1\_numbers) \Rightarrow (((r1\_tarski (k1\_rcomp\_1 X3 X4) X1) \wedge ((v1\_fcont\_1 \\
& (k2\_partfun1 k1\_numbers k1\_numbers (k1\_seqfunc k1\_numbers k1\_numbers \\
& (k5\_taylor\_1 X0 X1) X2) (k1\_rcomp\_1 X3 X4))) \wedge (r1\_taylor\_1 X0 (k2\_nat\_1 \\
& \quad X2 np\_1) (k2\_rcomp\_1 X3 X4)))) \Rightarrow ((r1\_xxreal\_0 X4 X3) \vee (\forall X5. \\
& ((v1\_funct\_1 X5) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\
& \quad k1\_numbers)))) \Rightarrow (((k1\_relset\_1 k1\_numbers X5 = X1) \wedge (\forall X6. \\
& (m1\_subset\_1 X6 k1\_numbers) \Rightarrow ((X6 \in X1) \Rightarrow (k1\_seq\_1 X5 X6 = k9\_real\_1 \\
& \quad (k1\_seq\_1 X0 X4) (k1\_seq\_1 (k3\_series\_1 (k6\_taylor\_1 X0 X1 X6 X4) \\
& \quad X2)))) \Rightarrow ((k1\_seq\_1 X5 X4 = k6\_numbers) \wedge ((v1\_fcont\_1 (k2\_partfun1 \\
& \quad k1\_numbers k1\_numbers X5 (k1\_rcomp\_1 X3 X4)) \wedge ((r2\_fdiff\_1 X5 \\
& \quad (k2\_rcomp\_1 X3 X4)) \wedge (\forall X6.(m1\_subset\_1 X6 k1\_numbers) \Rightarrow \\
& ((X6 \in k2\_rcomp\_1 X3 X4) \Rightarrow (k1\_fdiff\_1 X5 X6 = k1\_real\_1 (k10\_real\_1 \\
& \quad (k8\_real\_1 (k1\_seq\_1 (k1\_seqfunc k1\_numbers k1\_numbers (k5\_taylor\_1 \\
& \quad X0 (k2\_rcomp\_1 X3 X4) (k2\_nat\_1 X2 np\_1)) X6) (k2\_newton (k9\_real\_1 \\
& \quad X4 X6) X2)) (k3\_newton X2))))))))))))))))) \\
& \hspace{15em} (1)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\
& \quad k1\_numbers)))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow \\
& \quad (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\exists X4.((v1\_funct\_1 \\
& X4) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers k1\_numbers)))) \wedge \\
& \quad ((k1\_relset\_1 k1\_numbers X4 = X2) \wedge (\forall X5.(m1\_subset\_1 X5 \\
& \quad k1\_numbers) \Rightarrow ((X5 \in X2) \Rightarrow (k1\_seq\_1 X4 X5 = k9\_real\_1 (k1\_seq\_1 X1 \\
& \quad X3) (k1\_seq\_1 (k3\_series\_1 (k6\_taylor\_1 X1 X2 X5 X3)) X0)))))))))) \\
& \hspace{15em} (2)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
& ((v1\_funct\_1 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k1\_numbers \\
& k1\_numbers)))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 k1\_numbers)) \Rightarrow \\
& (((r1\_tarski X2 (k1\_relset\_1 k1\_numbers X1)) \wedge (r1\_taylor\_1 X1 \\
& X0 X2)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 k1\_numbers) \Rightarrow (\neg(\neg r1\_xxreal\_0 X4 X3) \wedge ((r1\_tarski \\
& (k1\_rcomp\_1 X3 X4) X2) \wedge ((v1\_fcont\_1 (k2\_partfun1 k1\_numbers k1\_numbers \\
& (k1\_seqfunc k1\_numbers k1\_numbers (k5\_taylor\_1 X1 X2) X0) (k1\_rcomp\_1 \\
& X3 X4))) \wedge ((r1\_taylor\_1 X1 (k2\_nat\_1 X0 np\_1) (k2\_rcomp\_1 X3 X4)) \wedge \\
& (\forall X5.((v1\_funct\_1 X5) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
& k1\_numbers k1\_numbers)))) \Rightarrow (\neg(k1\_relset\_1 k1\_numbers X5 = X2) \wedge \\
& ((\forall X6.(m1\_subset\_1 X6 k1\_numbers) \Rightarrow ((X6 \in X2) \Rightarrow (k1\_seq\_1 \\
& X5 X6 = k9\_real\_1 (k1\_seq\_1 X1 X4) (k1\_seq\_1 (k3\_series\_1 (k6\_taylor\_1 \\
& X1 X2 X6 X4) X0)))) \wedge ((k1\_seq\_1 X5 X4 = k6\_numbers) \wedge ((v1\_fcont\_1 \\
& (k2\_partfun1 k1\_numbers k1\_numbers X5 (k1\_rcomp\_1 X3 X4)) \wedge (( \\
& r2\_fdiff\_1 X5 (k2\_rcomp\_1 X3 X4)) \wedge (\forall X6.(m1\_subset\_1 X6 \\
& k1\_numbers) \Rightarrow ((X6 \in k2\_rcomp\_1 X3 X4) \Rightarrow (k1\_fdiff\_1 X5 X6 = k1\_real\_1 \\
& (k10\_real\_1 (k8\_real\_1 (k1\_seq\_1 (k1\_seqfunc k1\_numbers k1\_numbers \\
& (k5\_taylor\_1 X1 (k2\_rcomp\_1 X3 X4) (k2\_nat\_1 X0 np\_1)) X6) (k2\_newton \\
& (k9\_real\_1 X4 X6) X0) (k3\_newton X0)))))))))))))))))
\end{aligned}$$