numeri k. Si enim ponamus $1+x=a$, ob $la=1$, erit CAP. VII.
$1=\frac{1}{k}\left(\frac{a-1}{1}-\frac{(a-1)^2}{2}+\frac{(a-1)^3}{3}-\frac{(a-1)^4}{4}+\&c.\right)$, hincque habebitur $k=\frac{a-1}{1}-\frac{(a-1)^2}{2}+\frac{(a-1)^3}{3}-\frac{(a-1)^4}{4}+\&c.$, cujus ideo Seriei infinitæ valor, ſi ponatur $a=10$, circiter eſſe debebit $=2,30258$; quanquam difficulter intelligi poteſt eſſe $2,30258=\frac{9}{1}-\frac{9^2}{2}+\frac{9^3}{3}-\frac{9^4}{4}+\&c.$, quoniam hujus Seriei termini continuo fiunt majores, neque adeo aliquot terminis ſumendis ſumma vero propinqua haberi poteſt: cui incommodo mox remedium afferetur.

121. Quoniam igitur eſt $l(1+x)=\frac{1}{k}\left(\frac{x}{1}-\frac{x^2}{2}+\frac{x^3}{3}-\&c.\right)$, erit, poſito x negativo, $l(1-x)=-\frac{1}{k}\left(\frac{x}{1}+\frac{x^2}{2}+\frac{x^3}{3}+\frac{x^4}{4}+\&c.\right)$. Subtrahatur Series poſterior a priori, erit $l(1+x)-l(1-x)=l\frac{1+x}{1-x}=\frac{2}{k}\times\left(\frac{x}{1}+\frac{x^3}{3}+\frac{x^5}{5}+\frac{x^7}{7}+\&c.\right)$. Nunc ponatur $\frac{1+x}{1-x}=a$, ut ſit $x=\frac{a-1}{a+1}$, ob $la=1$ erit $k=2\left(\frac{a-1}{a+1}+\frac{(a-1)^3}{3(a+1)^3}+\frac{(a-1)^5}{5(a+1)^5}+\&c.\right)$, ex qua æquatione valor numeri k ex baſi a inveniri poterit. Si ergo baſis a ponatur $=10$ erit $k=2\left(\frac{9}{11}+\frac{9^3}{3.11^3}+\frac{9^5}{5.11^5}+\frac{9^7}{7.11^7}+\&c.\right)$, cujus Seriei termini ſenſibiliter decreſcunt, ideoque mox valorem pro k ſatis propinquum exhibent.

122. Quoniam ad ſyſtema Logarithmorum condendum baſin a pro lubitu accipere licet, ea ita aſſumi poterit ut fiat $k=1$. Ponamus ergo eſſe $k=1$, eritque per Seriem ſupra