

XXII. *Two Theorems*, by Edward Waring,
M. A. Lucasian Professor of Mathematics in the University of Cambridge, and
F. R. S. In a Letter to Charles Morton,
M. D. Sec. R. S.

T H E O R E M A I.

F I G U R A I.

Read April 25, 1765. **I**N datâ Ellipsi inscribantur duo (*n*)
 Laterum Polygona *abcde*, &c. et
pqrst, &c. ad Puncta respectiva *a, b, c, d, e*, &c.
p, q, r, s, t, &c. ducantur Tangentes *AB, BC,*
CD, DE, &c. et *PQ, QR, RS, ST*, &c.
 et sint

$\angle abB = \angle cbC, \angle bcC = \angle dcD, \angle cdD$
 $= \angle edE, \&c. \text{ et } \angle pqQ = \angle rqR, \angle qrR =$
 $\angle srS, \angle rsS = \angle tsT, \text{ et sic deinceps.}$

Et erit Summa Laterum

$ab + bc + cd + de + \&c. = pq + qr + rs + st + \&c.$

F I G U R A 2.

Cor. Ducatur in Ellipsi Polygonum *abcde* &c.
 (*n*) Laterum Methodo supra traditâ; inscribatur etiam
 aliud Polygonum *abklm* &c. (*n*) Laterum quovis
 alio

alio Modo, cujus unus Angulus ponitur ad Punctum
(*a*), et Summa $ab + bc + cd + de + \&c.$ major
est quam Summa $ab + bk + kl + lm + \&c.$

T H E O R E M A II.

TAB. IV. FIGURA I.

Describantur circa datam Ellipfim duo (*n*) La-
terum Polygona ABCDE &c. et PQRST &c.
quorum Puncta Contactuum respective sunt *a, b, c, d, e,*
&c. et *p, q, r, s, t,* &c.

Et sint

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle aBb}{\angle cCb} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{bC} \text{ et}$$

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle cCb}{\angle cDd} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{cD} \text{ et}$$

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle cDd}{\angle eEd} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{eD} \&c.$$

Et sic

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle pQq}{\angle qRr} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{qR} \text{ et}$$

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle qRr}{\angle sSr} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{sS} \text{ et}$$

$$\frac{\text{Tang.} + \text{Seca. Comp. } \angle sSr}{\angle tTs} :: \frac{\text{Tan.} + \text{Seca. Comp.}}{tT} \text{ et sic deinceps.}$$

Et erit Summa Laterum

$$AB + BC + CD + DE + \&c. = PQ + QR + RS + ST + \&c.$$

FIGURA

Fig. 1.

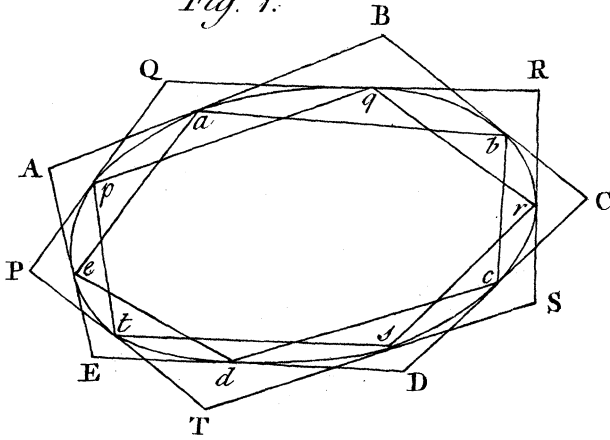


Fig. 2.

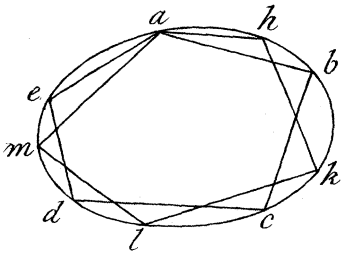


Fig. 3.

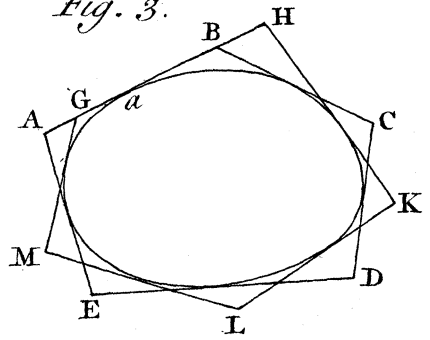


FIGURA 3.

Cor. Describatur circa Ellipsim Polygonum (n) Laterum $A B C D E$, &c. Methodo, quæ prius data fuit; Describatur etiam circa Ellipsim aliud Polygonum $G H K L M$, &c. (n) Laterum quavis aliâ Methodo, cujus unum Punctum Contactus (a) est Punctum Contactus Polygoni $A B C D E$, &c.

Et Summa $A B + B C + C D + D E + \&c.$ minor erit quam Summa $G H + H K + K L + L M + \&c.$

Consimiles Proprietates affirmari possunt de Polygonis Hyperbolas descriptis, &c.