

that the rectangle SP, PT is constant for all positions of P .

394. Find a point in a side of a triangle, from which two straight lines drawn, one to the opposite angle, and the other parallel to the base, shall cut off towards the vertex and towards the base, equal triangles.

395. ACB is a triangle having a right angle at C ; from A a straight line is drawn at right angles to AB , cutting BC produced at E ; from B a straight line is drawn at right angles to AB , cutting AC produced at D : shew that the triangle ECD is equal to the triangle ACB .

396. The straight line bisecting the angle ABC of the triangle ABC meets the straight lines drawn through A and C , parallel to BC and AB respectively, at E and F : shew that the triangles CBE, ABF are equal.

397. Shew that the diagonals of any quadrilateral figure inscribed in a circle divide the quadrilateral into four triangles which are similar two and two; and deduce the theorem of III. 35.

398. AB, CD are any two chords of a circle passing through a point O ; EF is any chord parallel to OB ; join CE, DF meeting AB at the points G and H , and DE, CF meeting AB at the points K and L : shew that the rectangle OG, OH is equal to the rectangle OK, OL .

399. $ABCD$ is a quadrilateral in a circle; the straight lines CE, DE which bisect the angles ACB, ADB cut BD and AC at F and G respectively: shew that EF is to EG as ED is to EC .

400. From an angle of a triangle two straight lines are drawn, one to any point in the side opposite to the angle, and the other to the circumference of the circumscribing circle, so as to cut from it a segment containing an angle equal to the angle contained by the first drawn line and the side which it meets: shew that the rectangle contained by the sides of the triangle is equal to the rectangle contained by the straight lines thus drawn.

401. The vertical angle C of a triangle is bisected by a straight line which meets the base at D , and is produced to a point E , such that the rectangle contained by CD and CE is equal to the rectangle contained by AC and CB : shew that if the base and vertical angle be given, the position of E is invariable.

402. ABC
tenus
squares
403.
line is
at G ,
rectan
404.
isosce
circun
the re
and th
be equ
triang
405.
touch
tact an
on H ,
straight
meet i
406.
of the
angles
lines b
the tri
of the l
407.
mean p
regular
408.
are par
409.
straight
410.
the dup
are simi