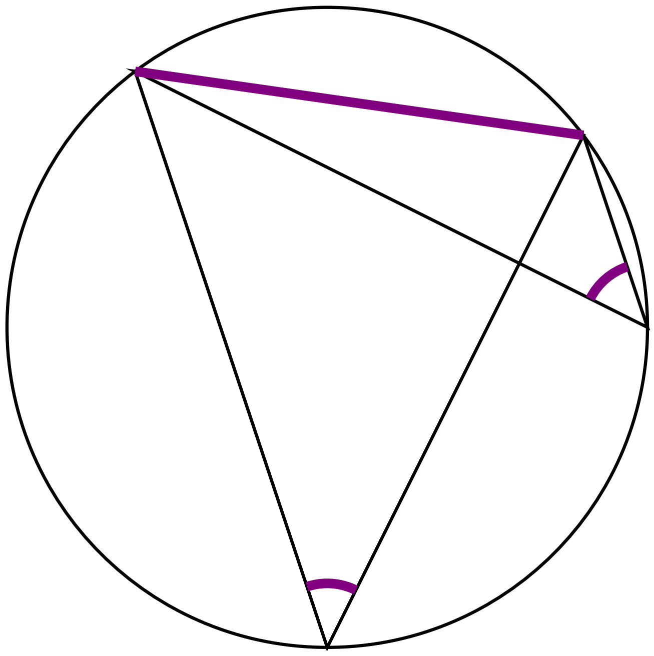
Triangular Billiard

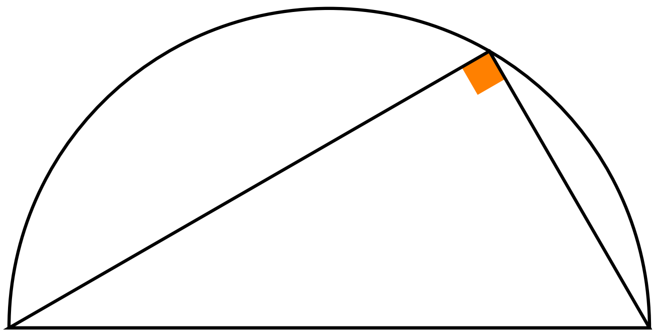
by: Tom Chung

Math 308-102

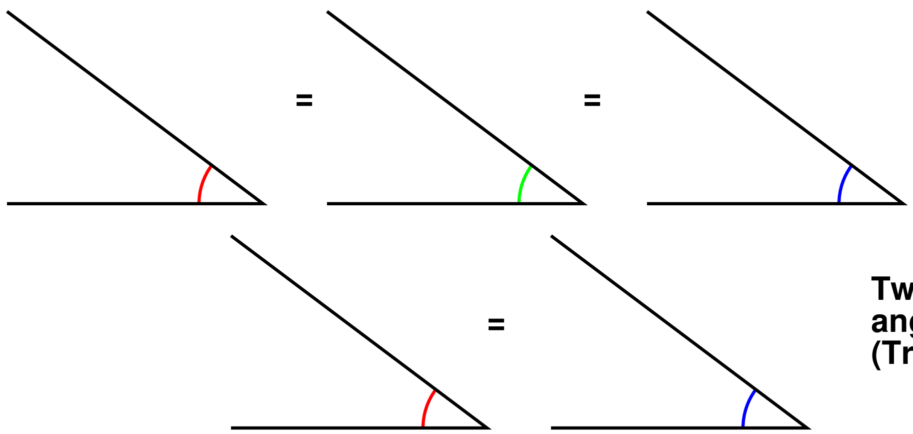
Table of Contents



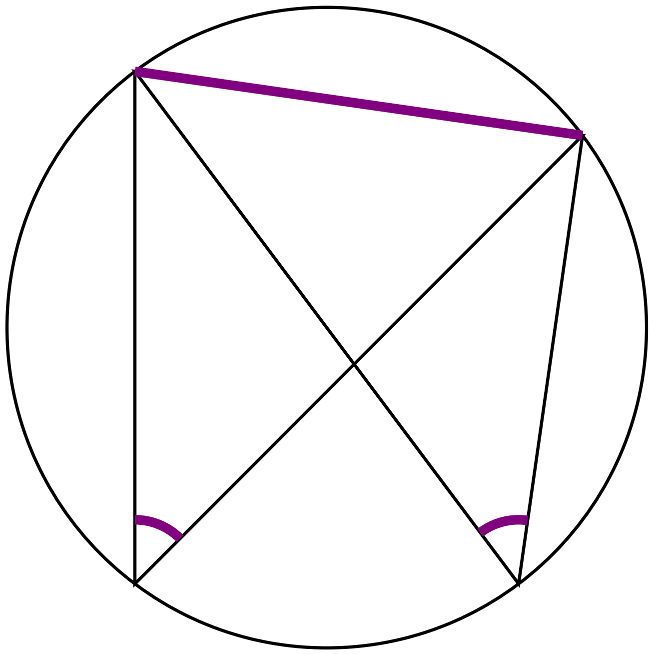
Inscribed angles in the same circle subtending the same arc are equal.



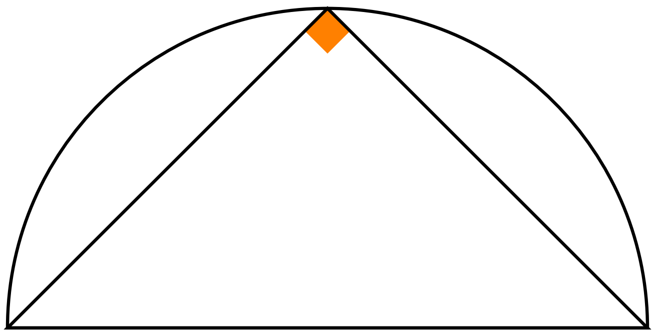
Trangle which is inscribed in a semi-circle is 90 degrees.



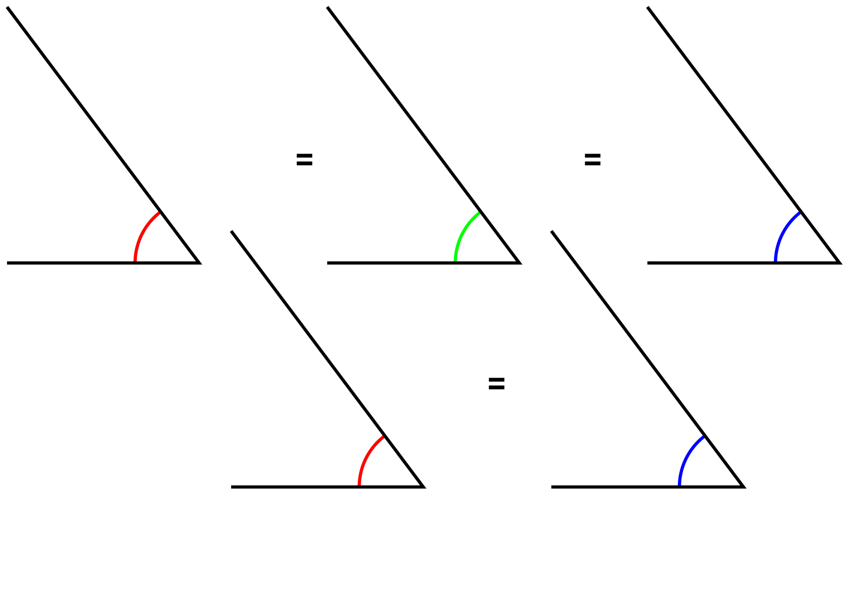
Two angles equaling a common angle are equal to each other. (Transitive)



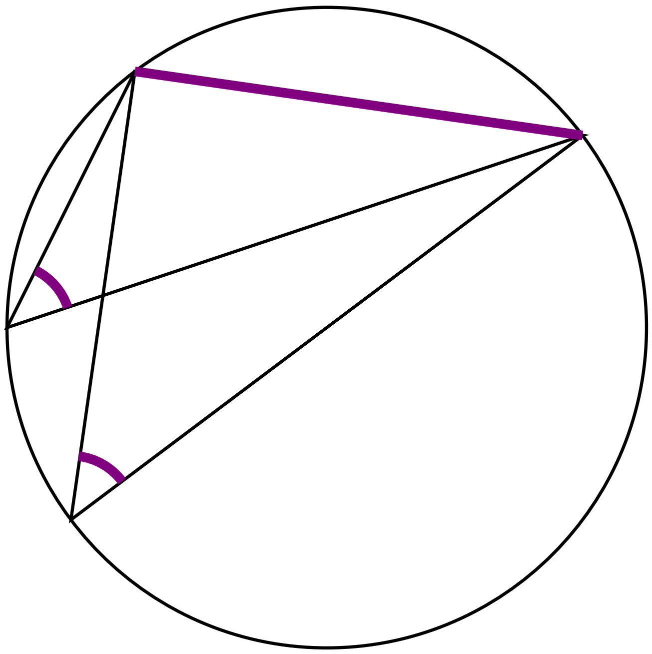
Inscribed angles in the same circle
subtending the same arc are equal.



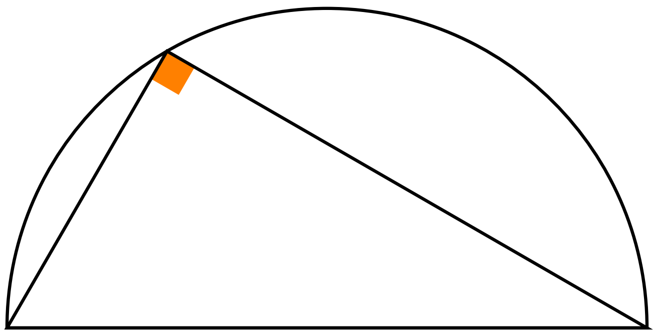
Trangle which is inscribed
in a semi-circle is 90 degrees.



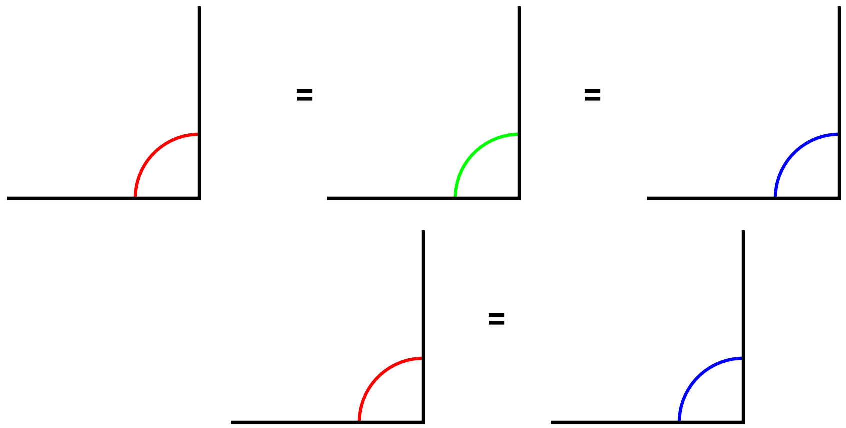
Two angles equaling a common
angle are equal to each other.
(Transitive)



Inscribed angles in the same circle subtending the same arc are equal.

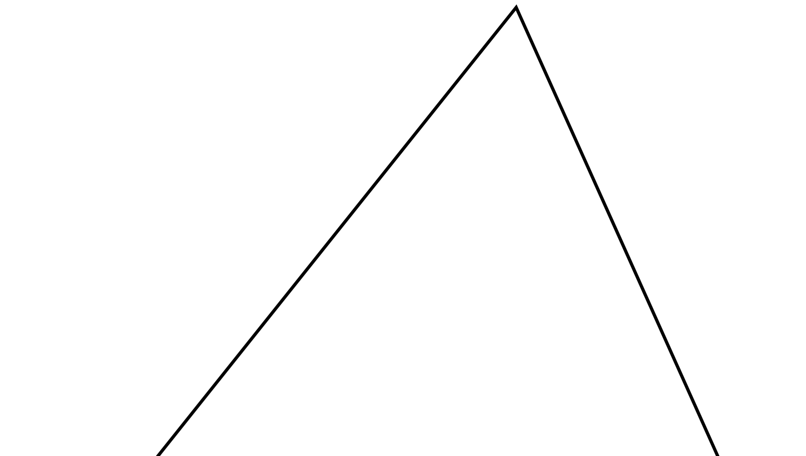


Trangle which is inscribed in a semi-circle is 90 degrees.

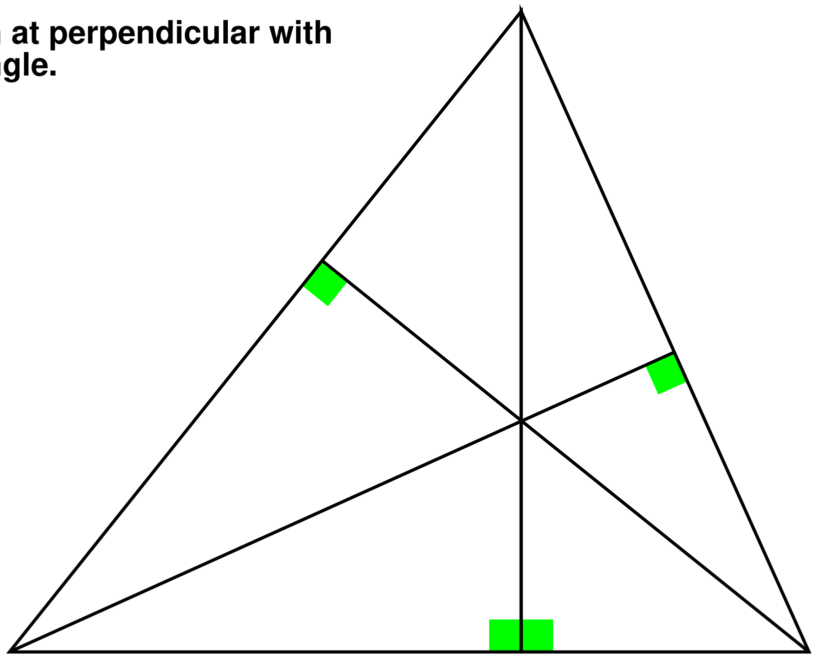


Two angles equaling a common angle are equal to each other. (Transitive)

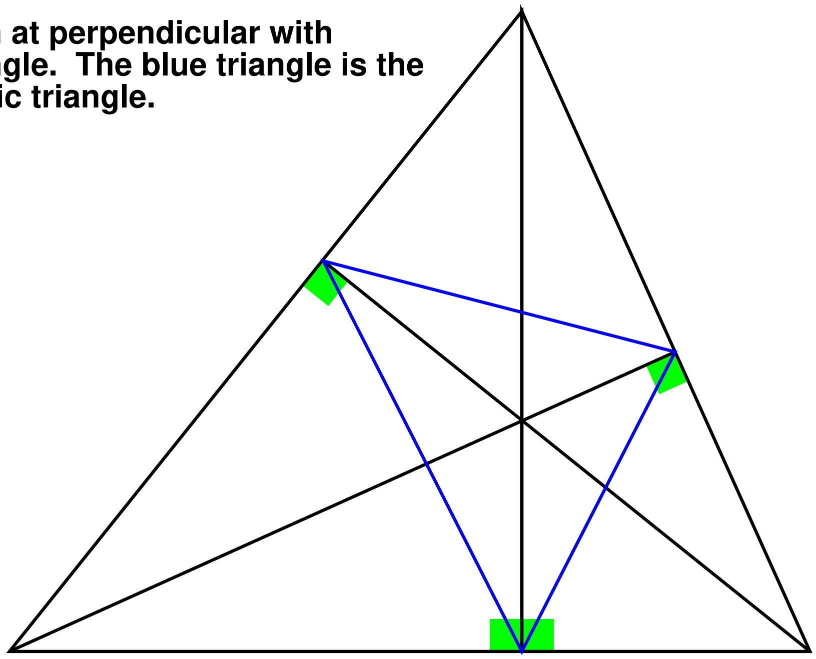
An acute triangle.



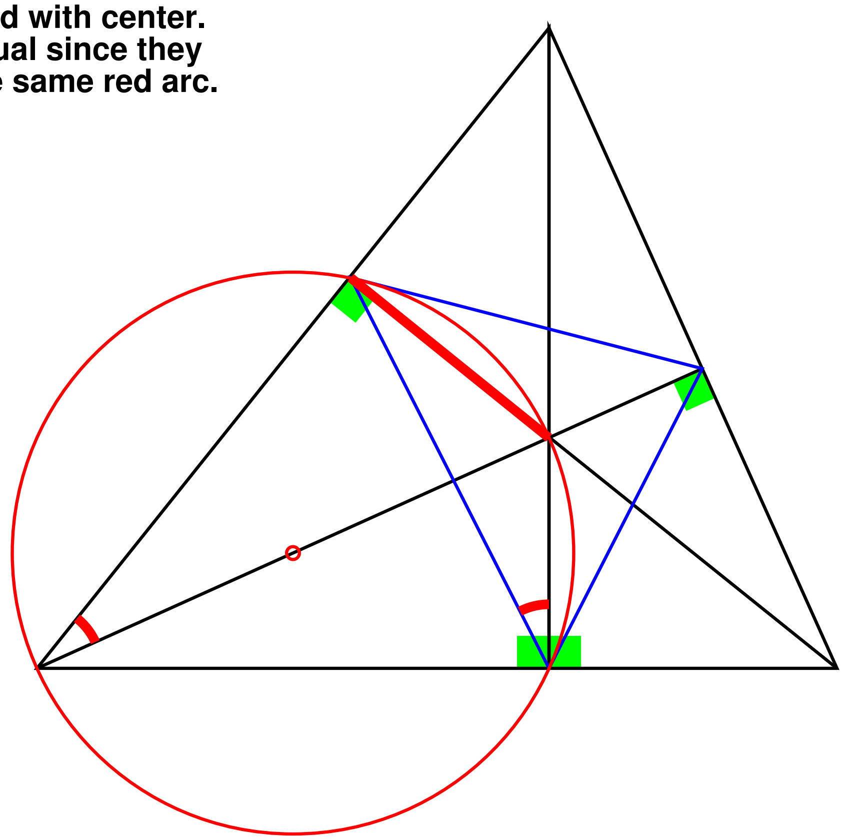
An acute triangle
with altitudes which at perpendicular with
the sides of the triangle.



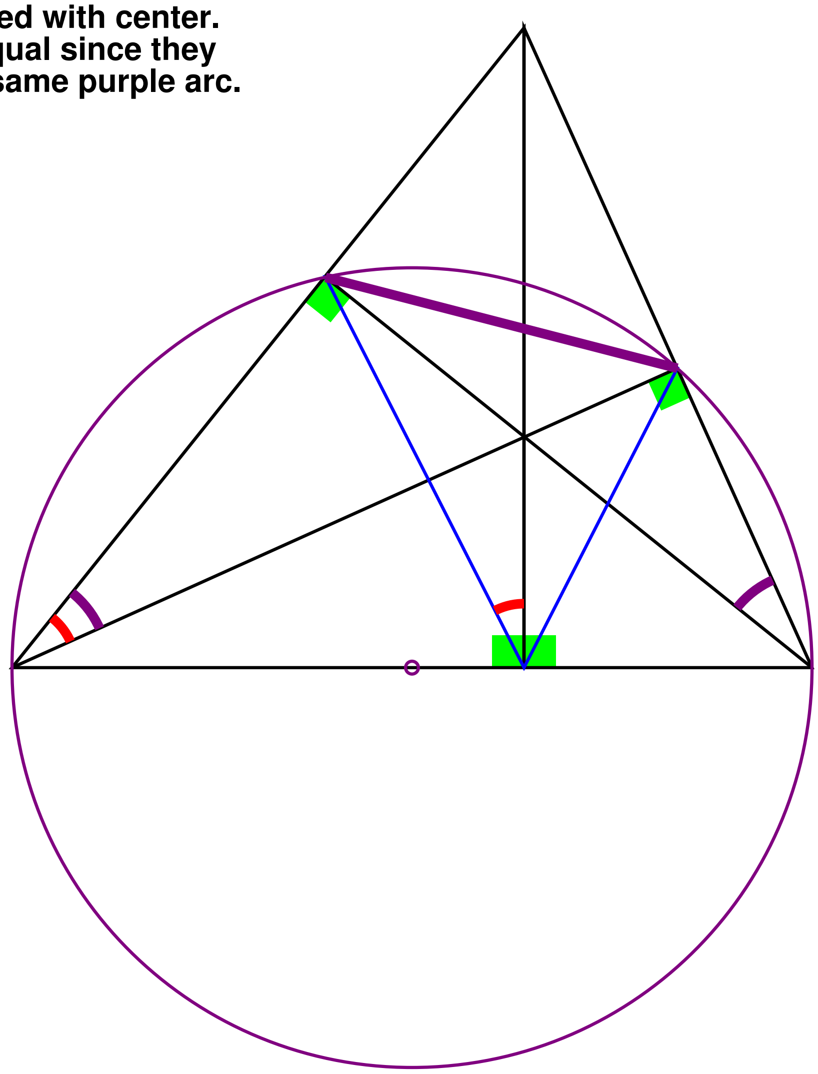
An acute triangle
with altitudes which at perpendicular with
the sides of the triangle. The blue triangle is the
acute triangle's orthic triangle.



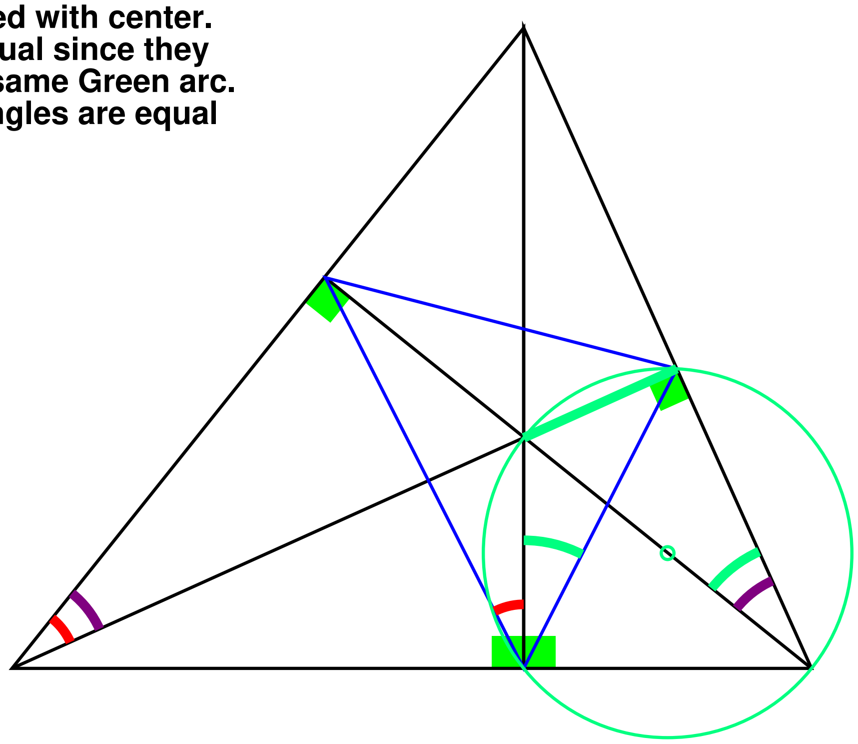
Red circle indicated with center.
Red angles are equal since they
are subtending the same red arc.



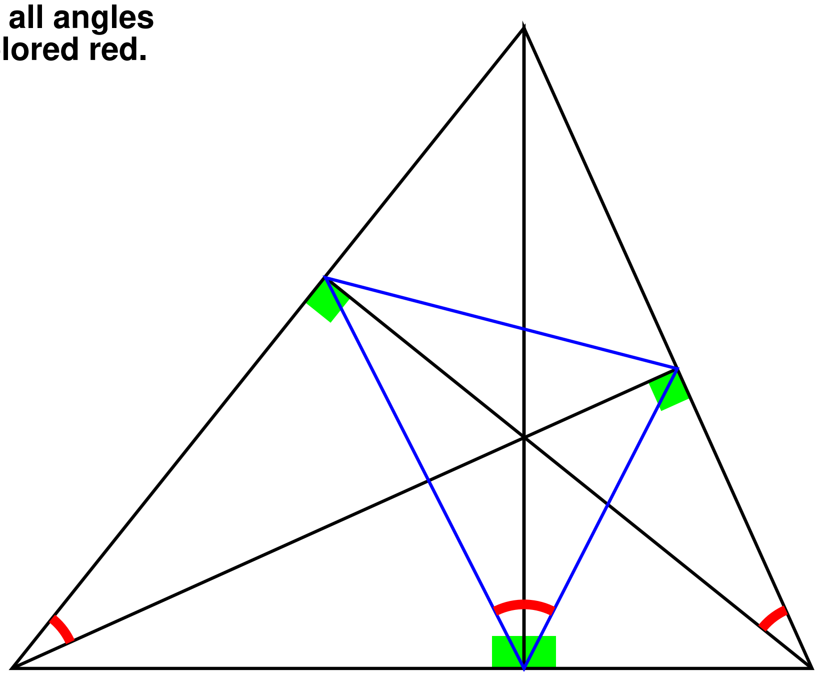
Purple circle indicated with center.
Purple angles are equal since they
are subtending the same purple arc.



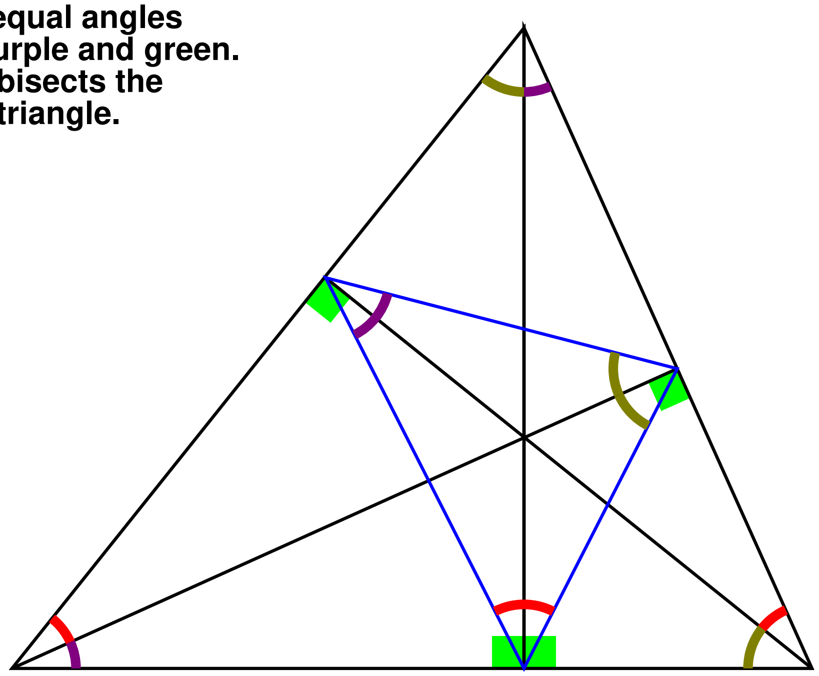
Green circle indicated with center.
Green angles are equal since they are subtending the same Green arc.
Notice all colored angles are equal to one another.



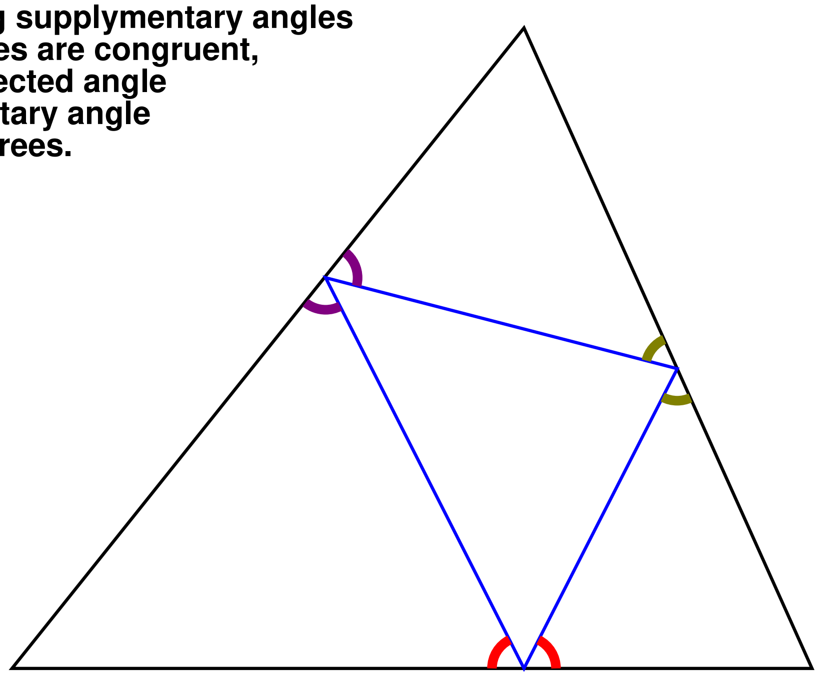
By rule of transitive, all angles are equal and are colored red.



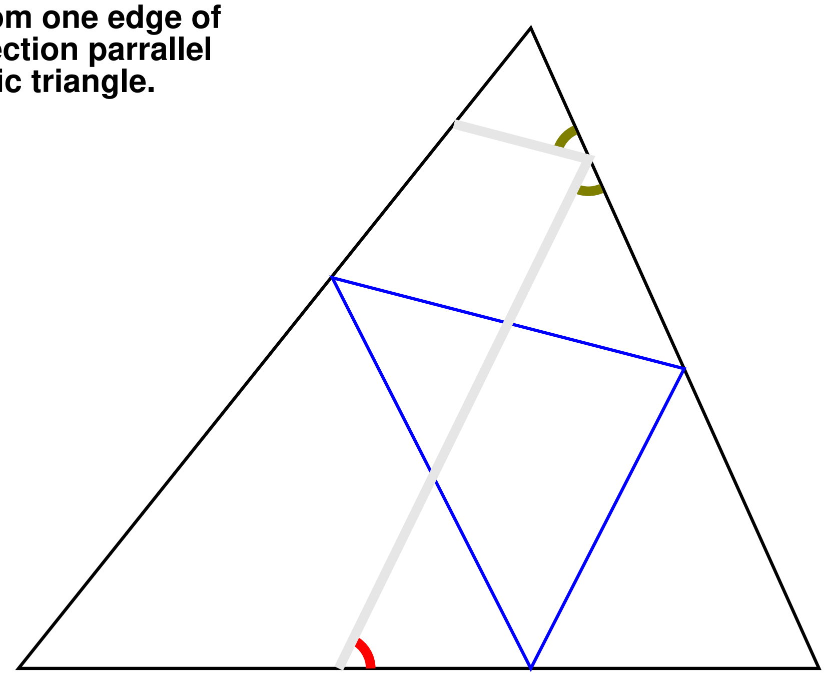
Likewise, the other equal angles are indicated with purple and green. Notice the altitudes bisects the angles of the orthic triangle.



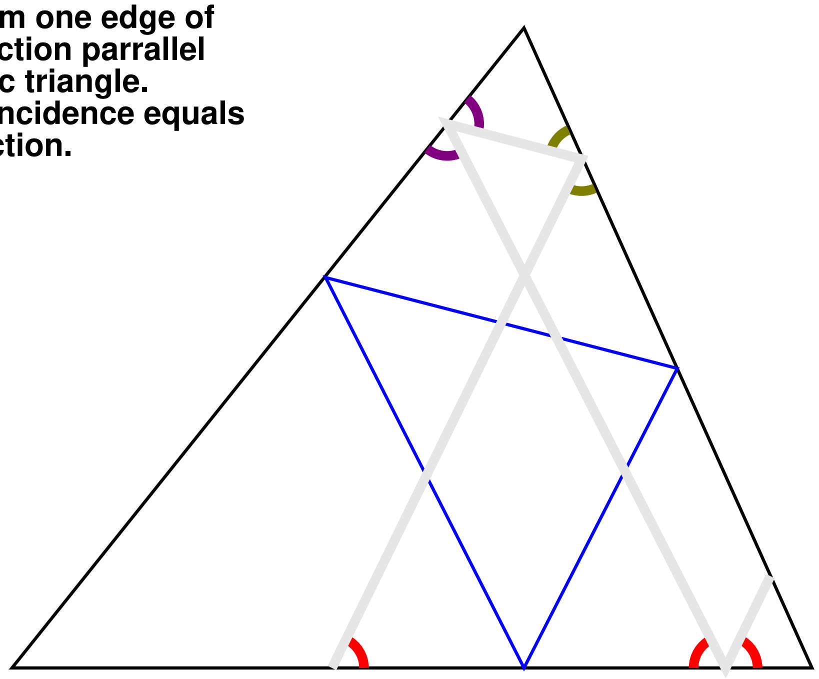
Hence the remaining supplymentary angles
of the bisected angles are congruent,
since one of the bisected angle
with one supplymentary angle
has a sum of 90 degrees.



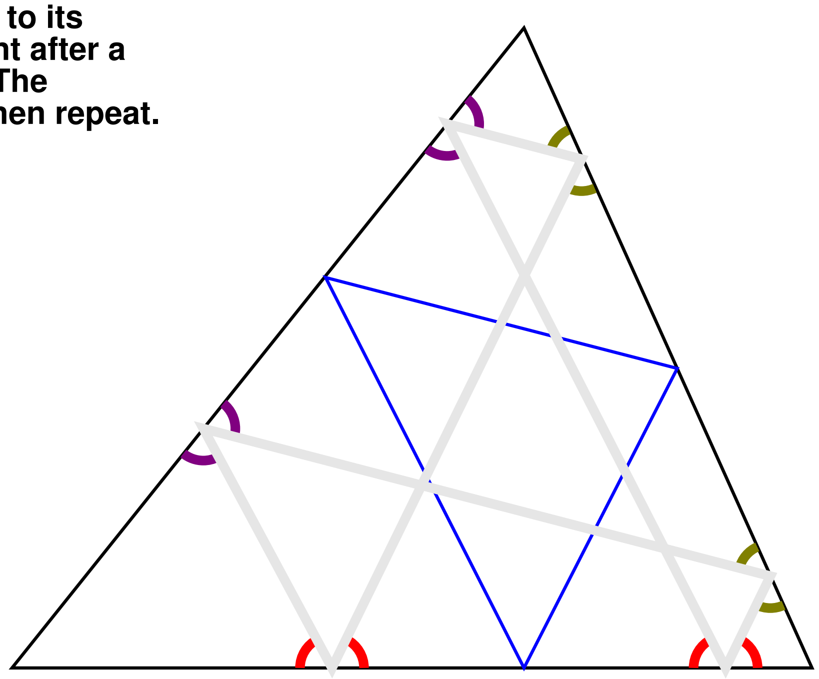
Starting an array from one edge of the triangle in a direction parrallel to a side of the orthic triangle.



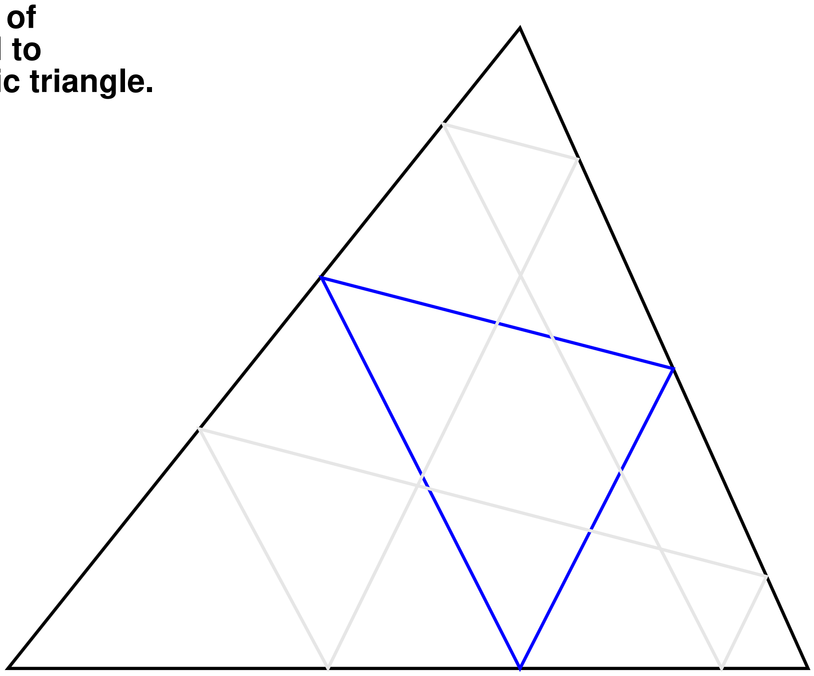
Starting an array from one edge of
the triangle in a direction parrallel
to a side of the orthic triangle.
Notice the angle of incidence equals
to the angle of reflection.



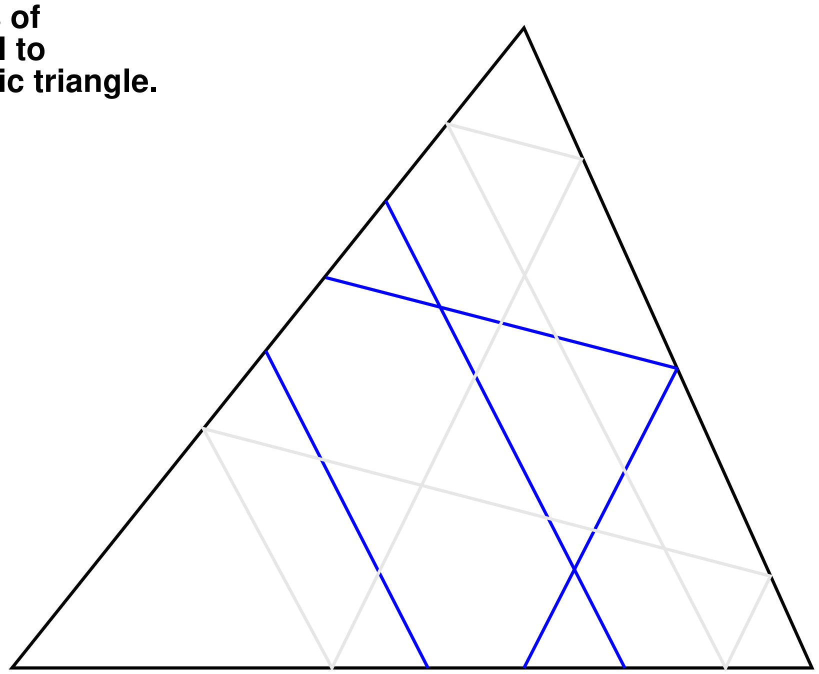
The array will return to its original starting point after a "six legs journey". The same itinerary will then repeat.



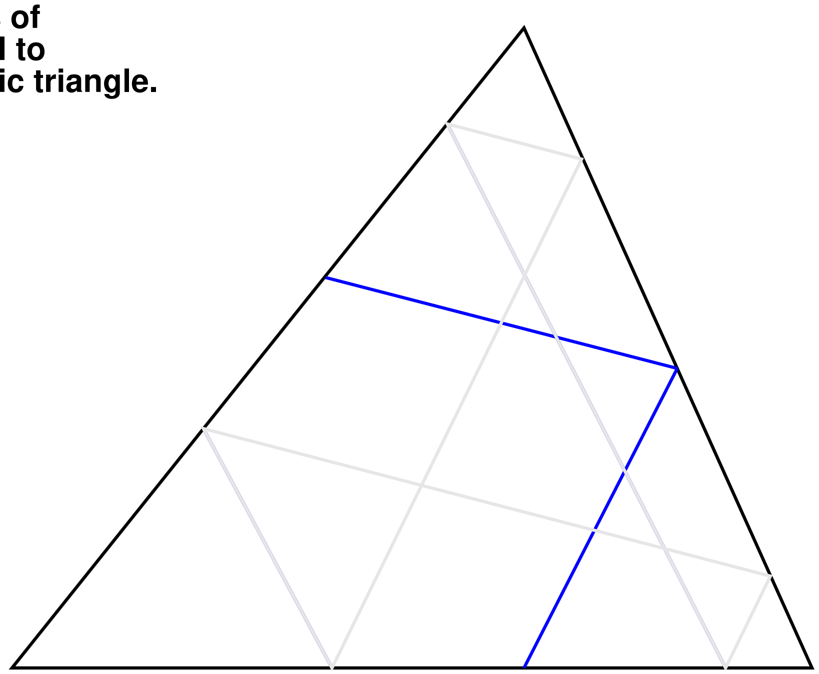
Notice how the lines of the path are parrallel to the sides of the orthic triangle.



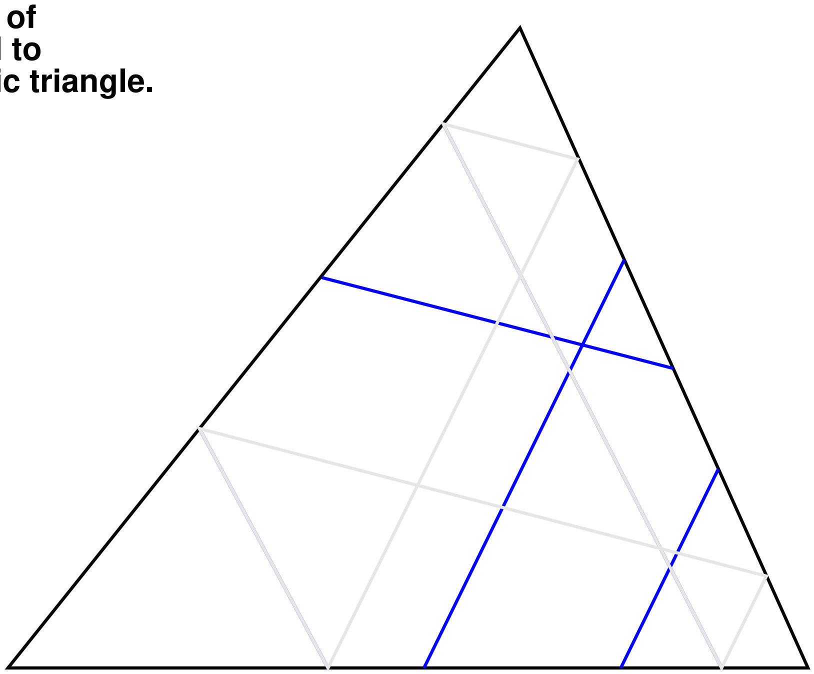
Notice how the lines of
the path are parrallel to
the sides of the orthic triangle.



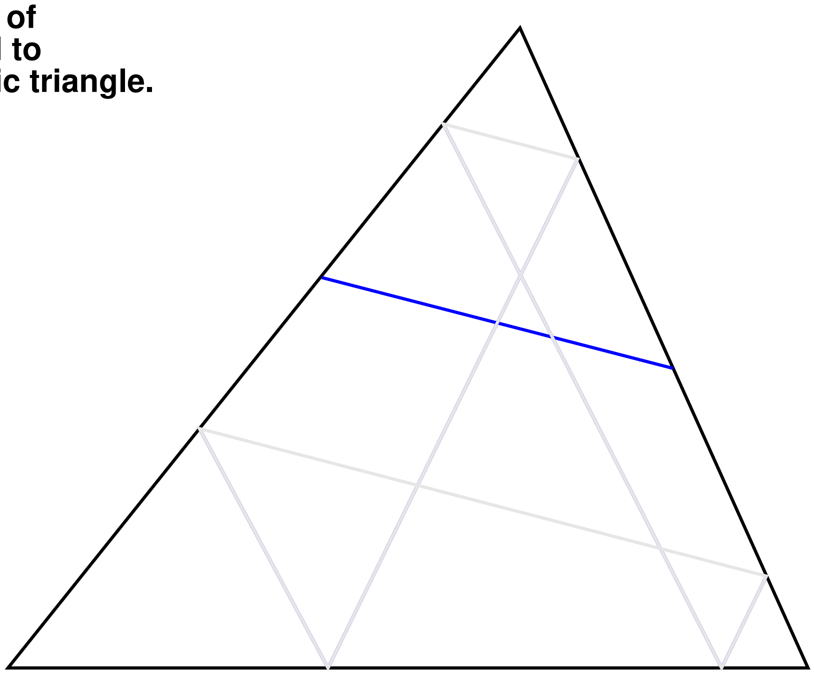
**Notice how the lines of
the path are parrallel to
the sides of the orthic triangle.**



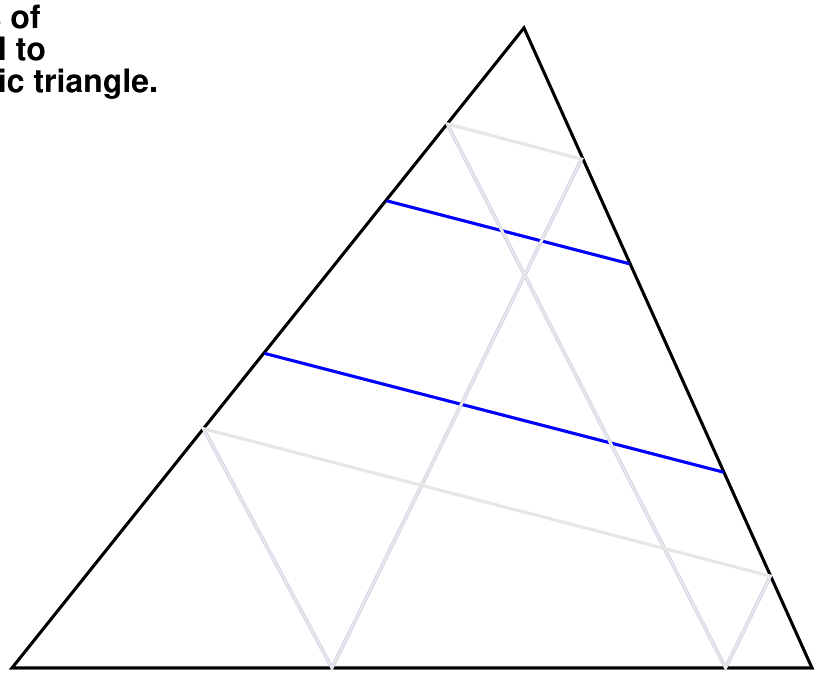
Notice how the lines of
the path are parrallel to
the sides of the orthic triangle.



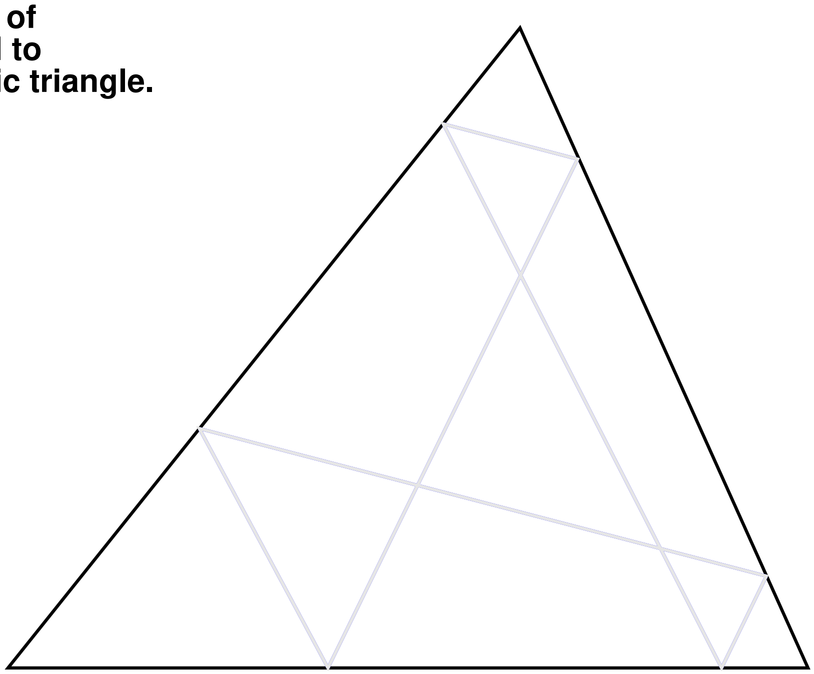
Notice how the lines of the path are parrallel to the sides of the orthic triangle.



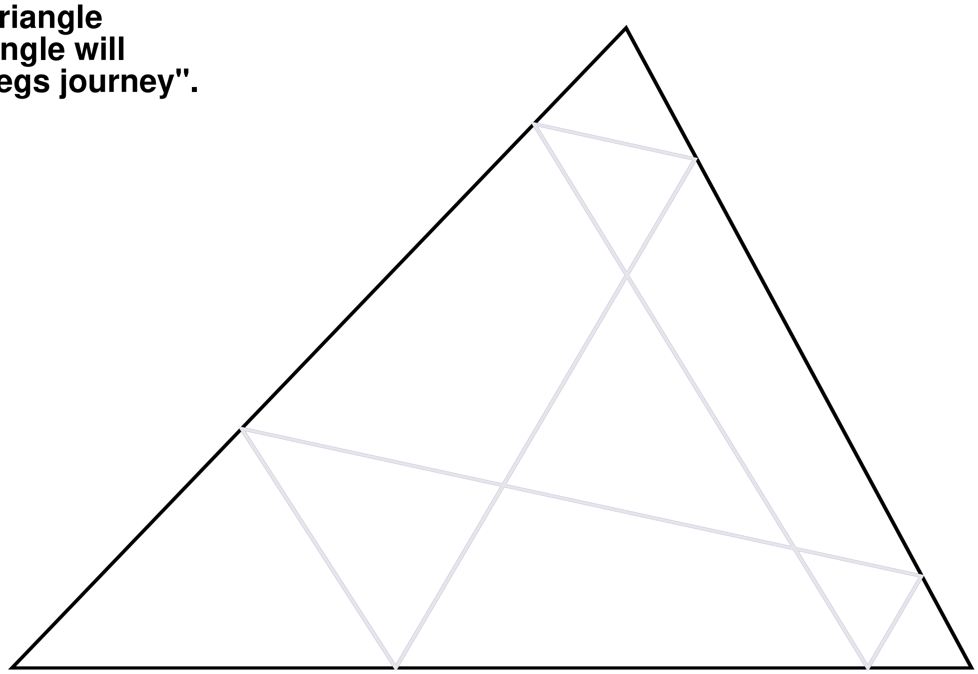
**Notice how the lines of
the path are parrallel to
the sides of the orthic triangle.**



Notice how the lines of
the path are parrallel to
the sides of the orthic triangle.



Shearing the acute triangle to another acute triangle will still produce a "six legs journey".



**Shearing the acute triangle
to another acute triangle will
still produce a "six legs journey".
Notice that an orthic triangle
will still exsist.**