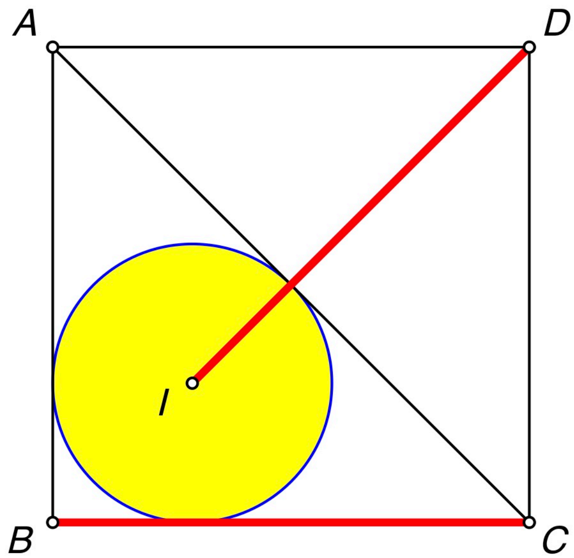
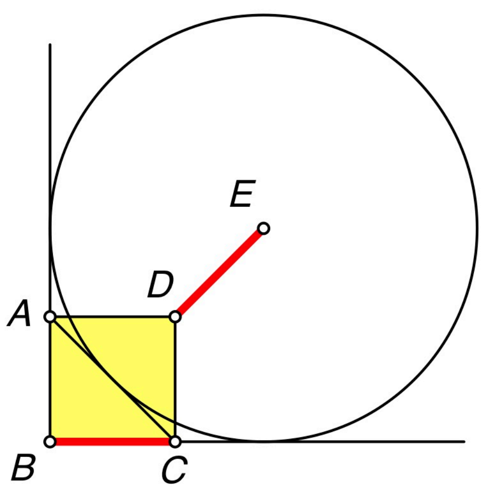


ABCD is a square.

I = incenter(△ABC)

Prove: BC=DI

Stanley Rabinowitz, December, 2019

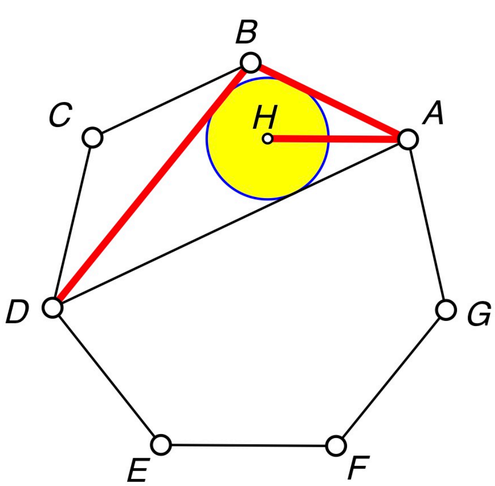


ABCD is a square.

E is center of excircle of
△ABC tangent to AC.

Prove: BC=DE

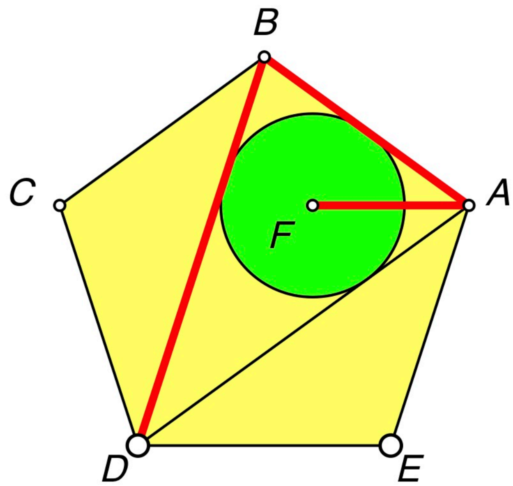
Stanley Rabinowitz, December 2019



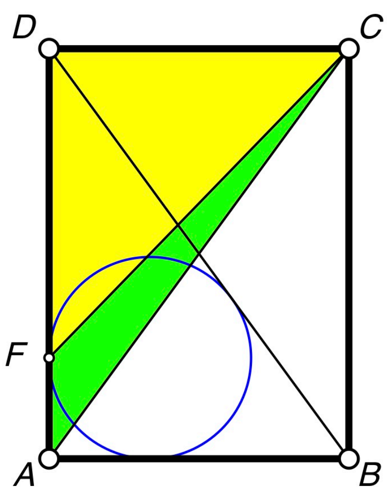
ABCDEFG is a regular heptagon.
H is the incenter of △ABD.

Prove: HA+AB=BD

Stanley Rabinowitz, December 2019



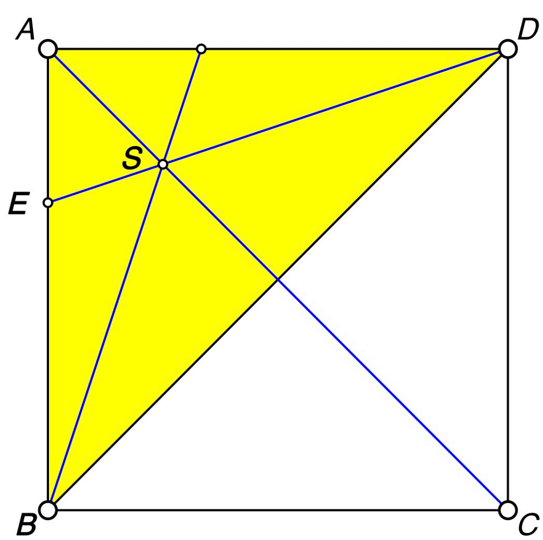
ABCDE regular pentagon
1. F=incenter[ABD]
Conclusion: FA+AB=BD



ABCD is a rectangle.
The incircle of △ABD touches AD at F.

Prove: △FDC and △ACF have the same perimeter.

Stanley Rabinowitz, December 2019



ABCD is a square.
S is the symmedian point of △ABD.

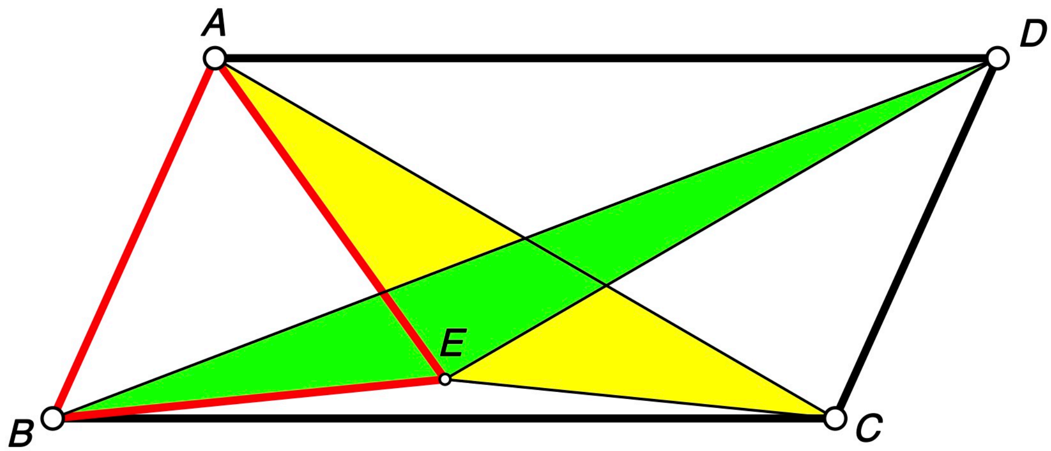
Prove:

(i) AB=3AE

(ii) DS=3SE

(iii) △AES~△CBS

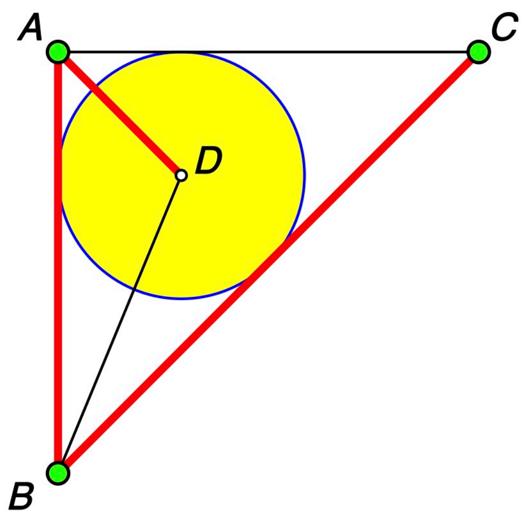
Stanley Rabinowitz, December 2019



ABCD is a parallelogram.
ABE is an equilateral triangle.

Prove: △ACE and △BDE have the same centroid.

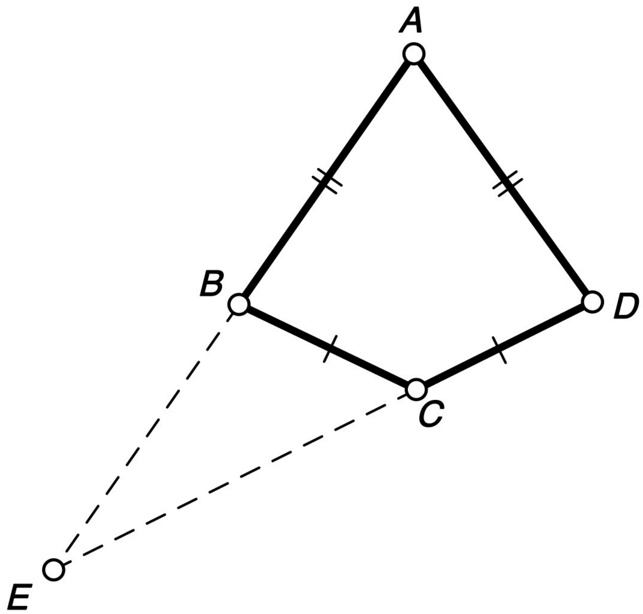
Stanley Rabinowitz, December 2019



BA=AC, BA⊥AC
D is the incenter of △BAC.

Prove: DA+AB=BC

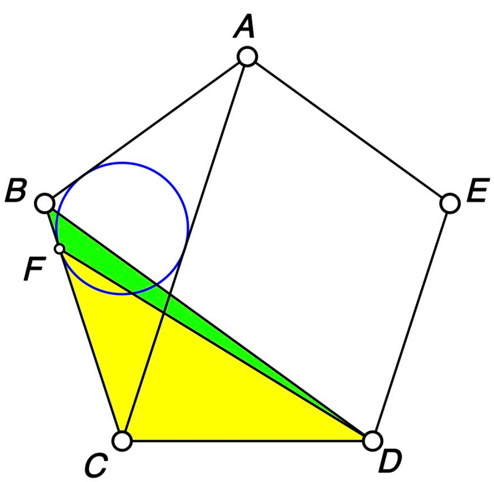
Stanley Rabinowitz, December 2019



AB=AD, CB=CD

Prove: AB · CE=AE · BC

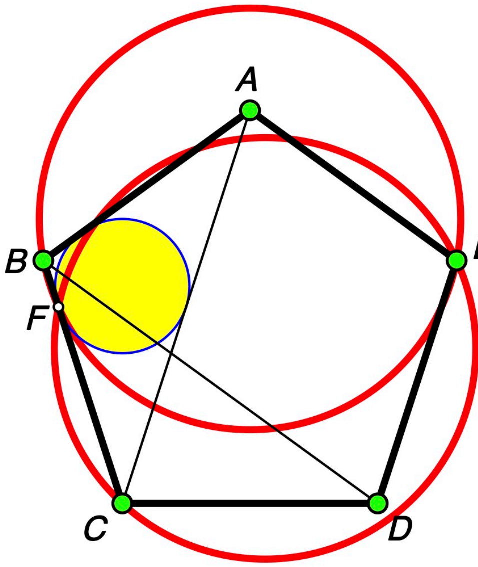
Stanley Rabinowitz, December 2019



ABCDE is a regular pentagon.
F is a touch point.

Prove: Green and yellow triangles have the same perimeter.

Stanley Rabinowitz, January 2020

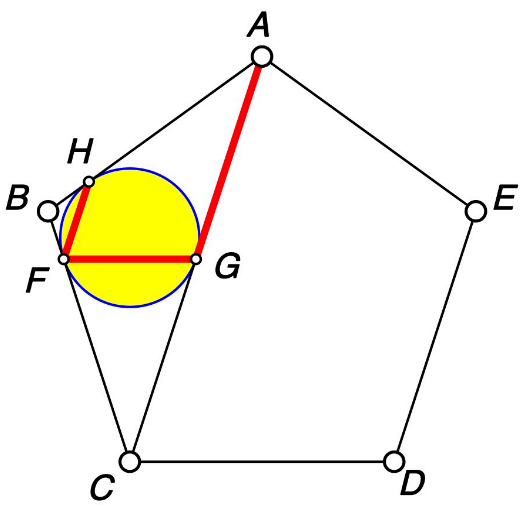


ABCDE is a regular pentagon.
F is a touch point.

Prove:

⊙BEF and ⊙CEF are congruent.

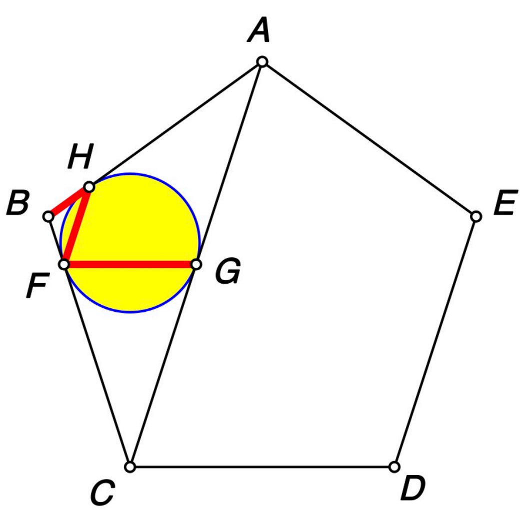
Stanley Rabinowitz, January 2020



ABCDE is a regular pentagon.
F , G, H are touch points.

Prove: HF+FG=GA

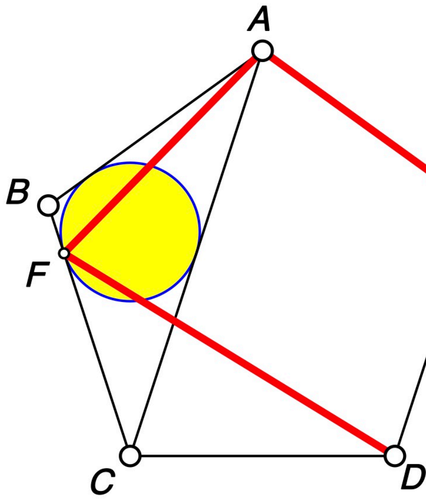
Stanley Rabinowitz, January 2020



ABCDE is a regular pentagon.
F , G, H are touch points.

Prove: BH+HF=FG

Stanley Rabinowitz, January 2020

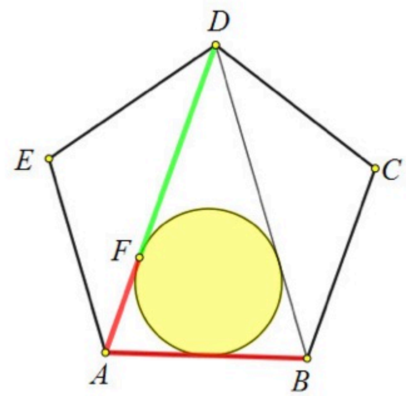


ABCDE is a regular pentagon.
F is a touch point.

Prove: $AE^2 + AF^2 = DF^2$

Stanley Rabinowitz, January 2020

4274



- ⋆ $ABCDE$ regular pentagon
- ⋆ F touch point

Prove that: $AB^2 + AF^2 = FD^2$

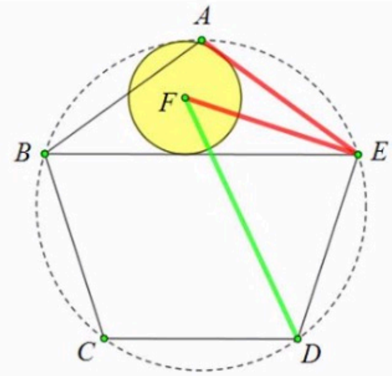
Ercole Suppa 3/1/2020

4275

★ $ABCDE$ regular pentagon

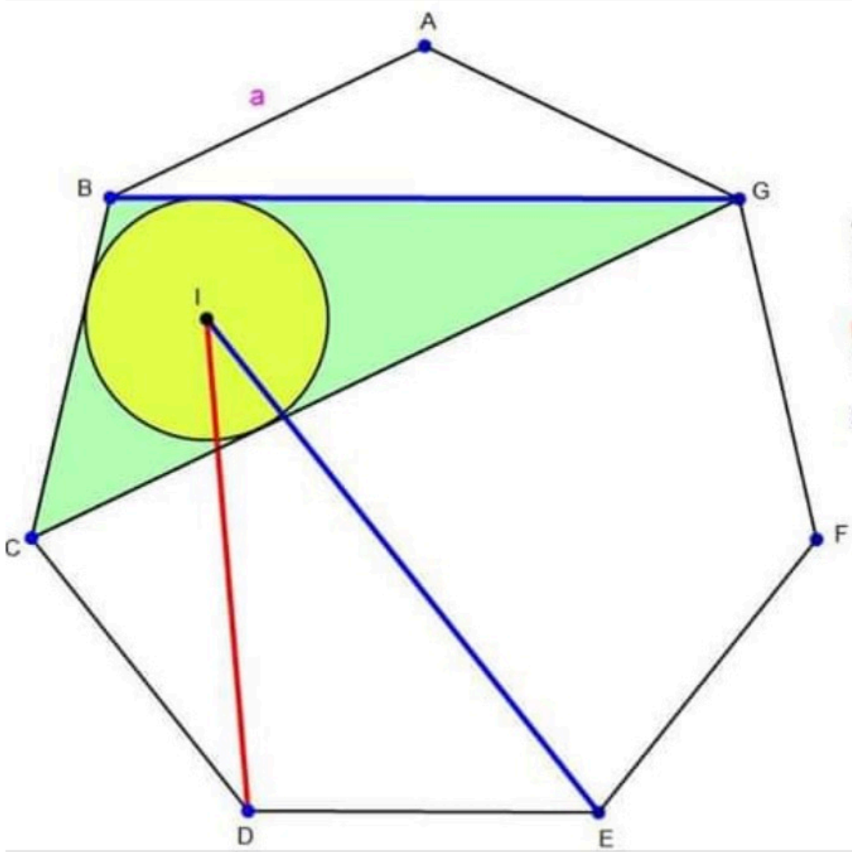
★ F incenter of mixtilinear triangle AEB

Prove that: $AE^2 + EF^2 = DF^2$



ERCOLE SUPPA 3/1/2020

4280 by Kadir Altıntaş

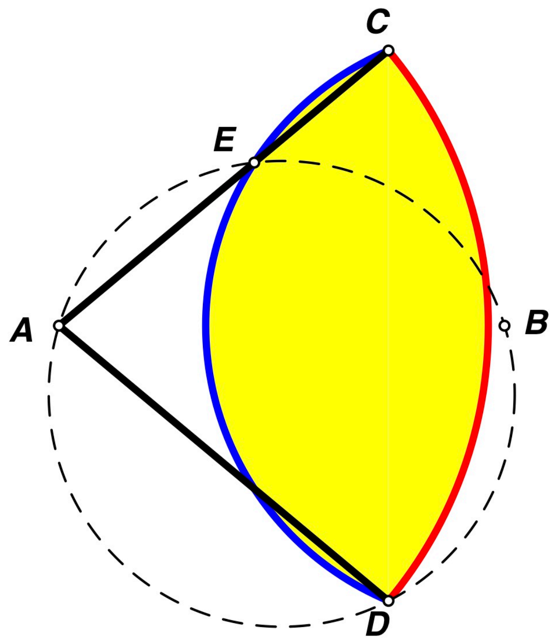


ABC..G regular heptagon, AB=a
BGC heptagonal triangle
I incenter of BCG

Prove.

1. Blue segments are equal. i.e. BG=IE

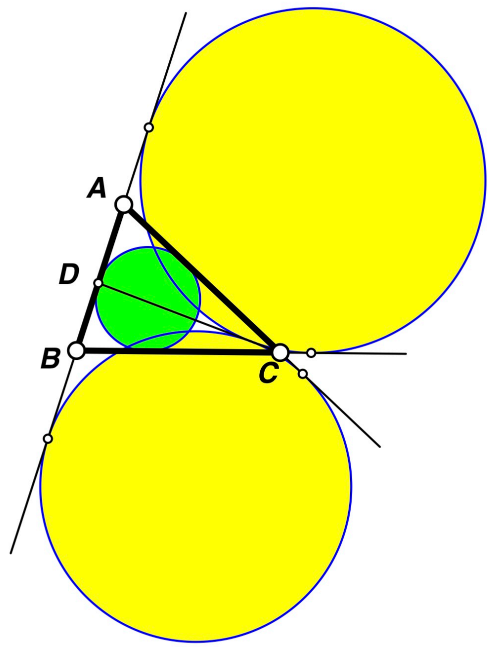
2. ID= $a\sqrt{2}$



Blue arc is centered at B.
Red arc is centered at A.
AC meets blue arc at E.

Prove: A, E, B, D concyclic.

Stanley Rabinowitz, January 2020

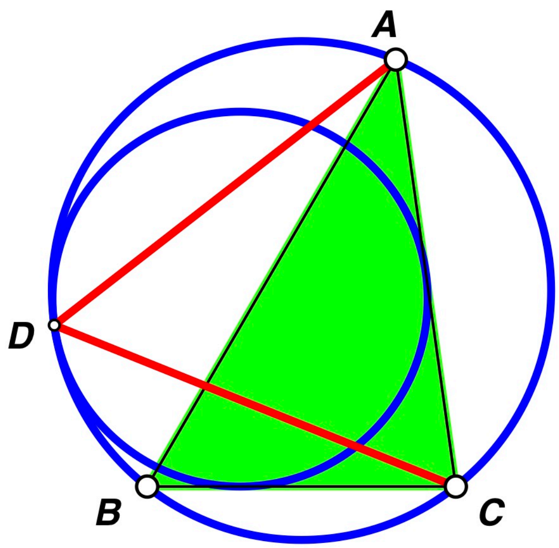


Let D be the point where the incircle of △ABC touches AB.

Prove that the A-excircle of △DAC is tangent to the B-excircle of △DBC.

Extra credit: For a fixed △ABC, find all points D with this property.

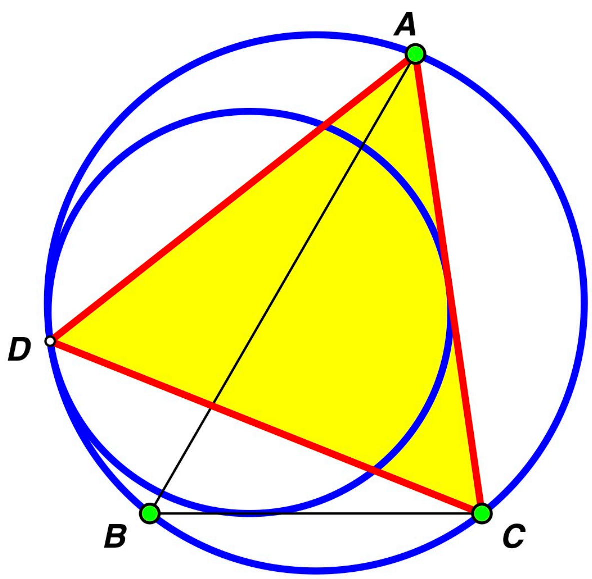
Stanley Rabinowitz, February 2020



AB + AC = 3 · BC.
Blue circles touch at D.

Prove: AD = CD

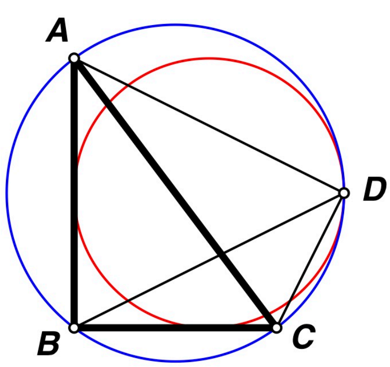
Stanley Rabinowitz, February 2020



BC=5, AC=7, AB=8.
Blue circles touch at D.

Prove: △ACD is equilateral

Stanley Rabinowitz, February 2020



BC=3, AB=4, AC=5
D is the B-mixtilinear touch point.

Prove that triangles ABD and ACD have the same Euler line.

Stanley Rabinowitz, April 2020