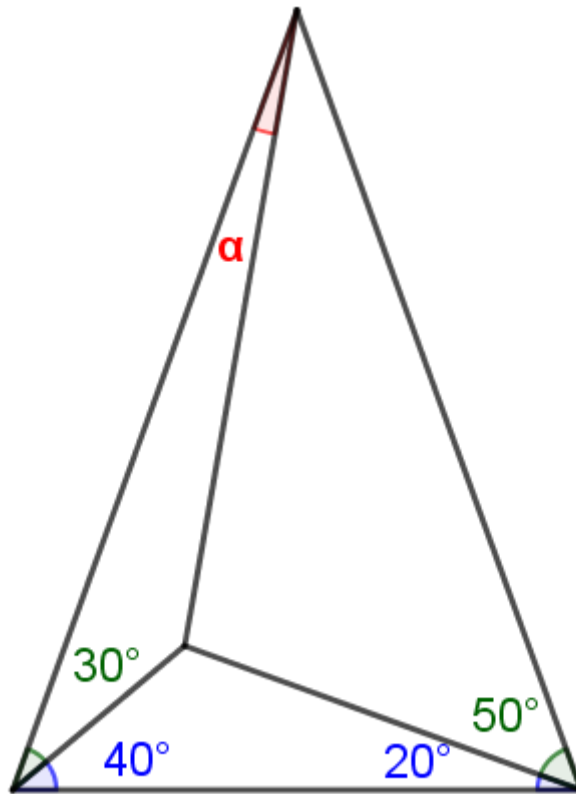


MEI Maths Item of the Month

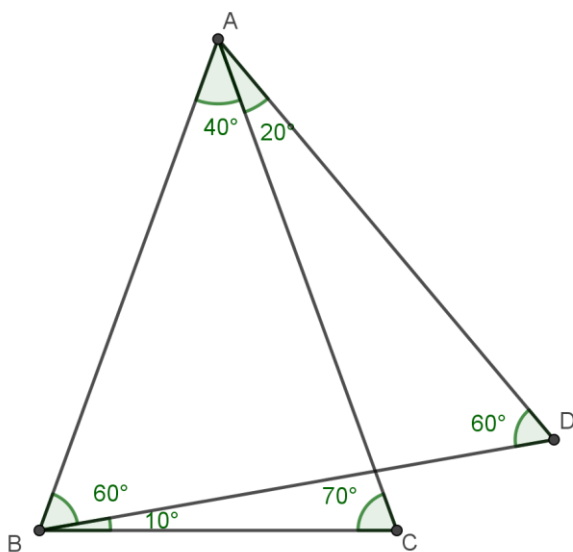
April 2021 Angling for an answer



Find the size of the angle α in this isosceles triangle.

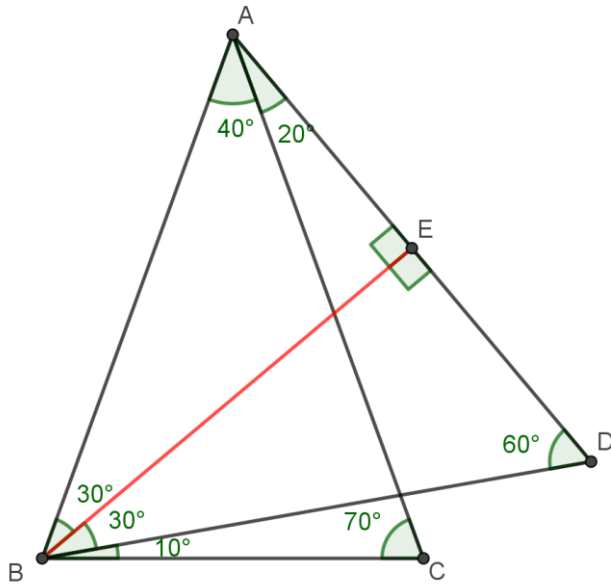
Solution

$$\alpha = 10^\circ.$$

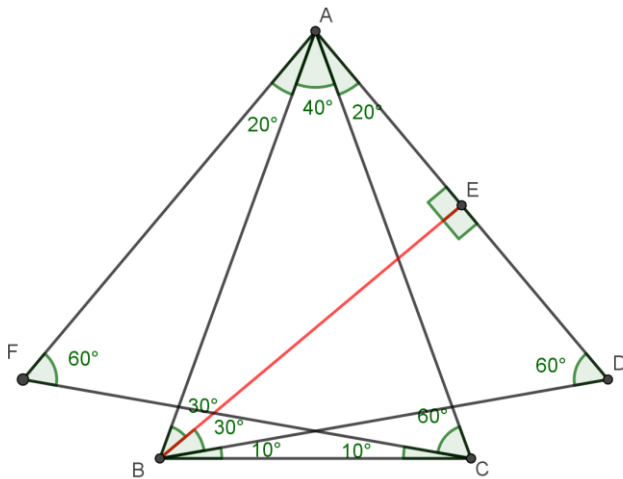


ABD is an equilateral triangle.

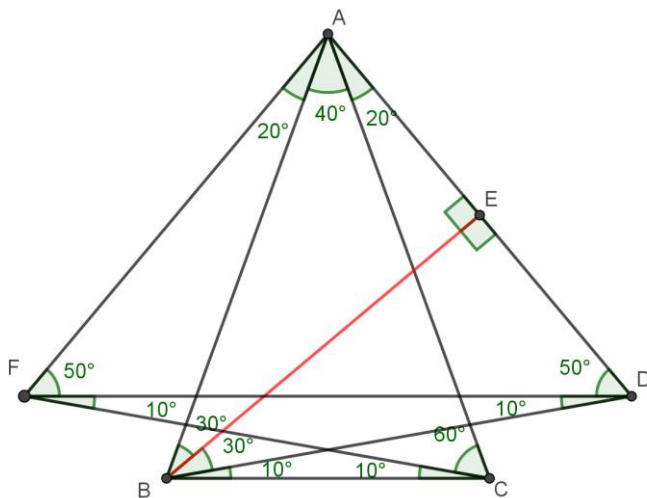
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BE is a line of symmetry of triangle ABD.

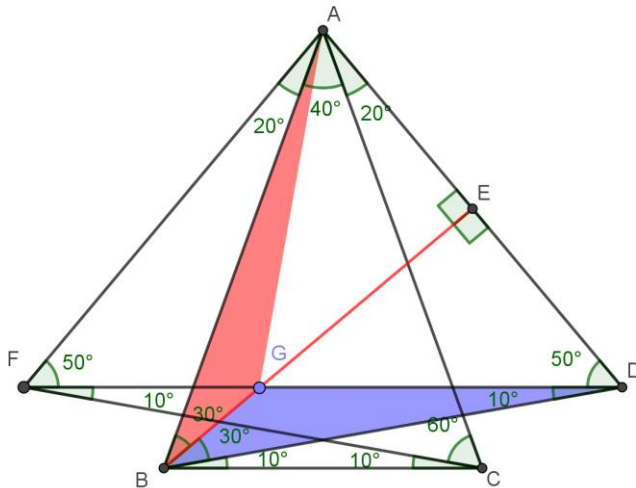


AFC is an equilateral triangle.



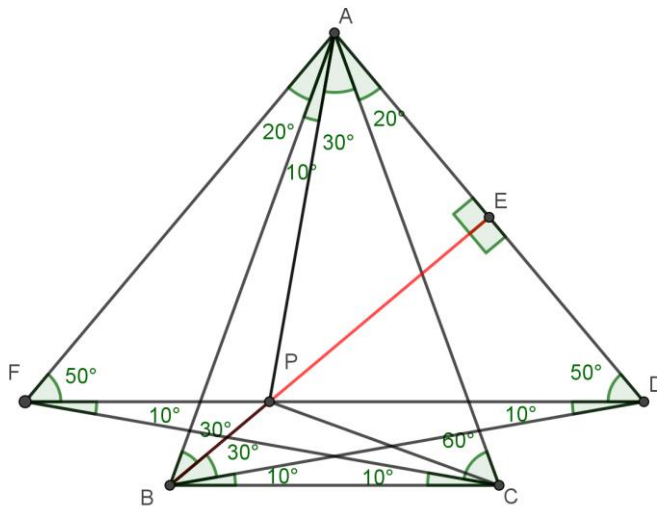
FD is parallel to BC (by symmetry or alternate angles).

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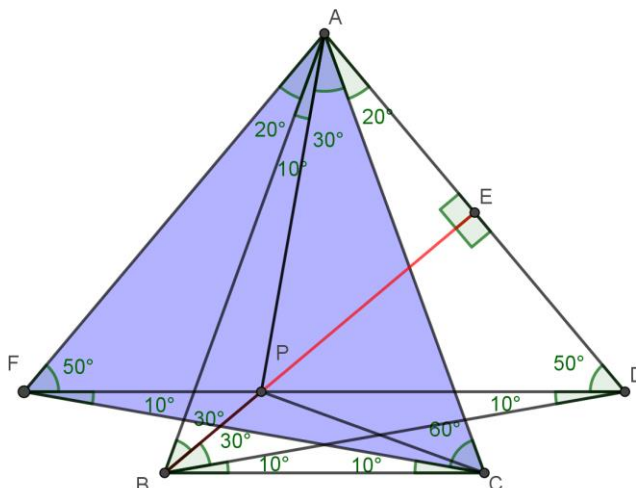
Triangles ABG and DBG are congruent (since $BA=BD$ and G is on BE).

Let G be at the point of intersection of FD and BE.



Then triangles ABP and DBP are congruent.

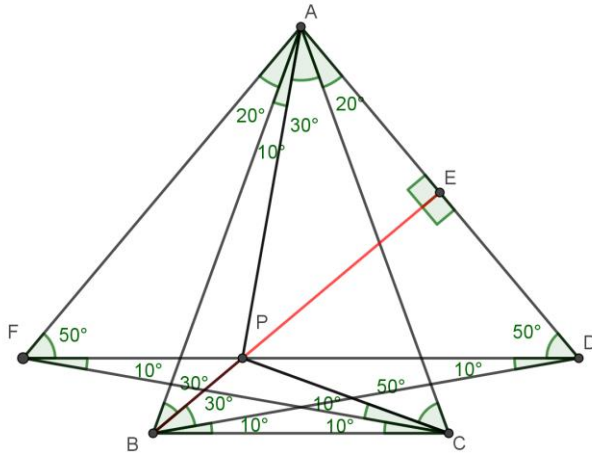
Therefore angle BAP = angle BDP = 10° .



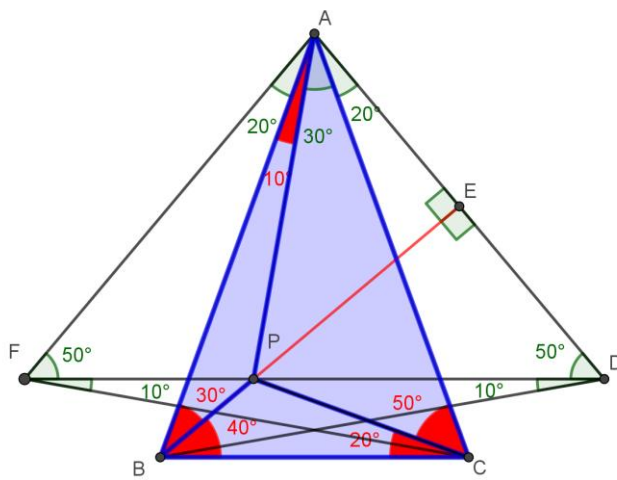
AP is a line of symmetry of triangle AFC.

Therefore $PF=PC$ and triangle FPC is isosceles.

MEI Maths Item of the Month



And so angle $PCB = 20^\circ$.



$\alpha = 10^\circ$.