where C is the arbitrary constant; on changing to Cartesian co-ordinates, we find that the curves are the intersections of the sphere $x^2+y^2+z^2=r^2$, and the quadrics

$$C\,x^2+(C-1)\,y^2+2\tan\phi_0\,zx-r^2=0,$$

and are therefore sphero-conics.

Finally, it may be remarked that if the earth's magnetic field were free from local irregularities, then the lines of equal magnetic variation (isogonals) would be curves of constant bearing with the points Z, Z' at the magnetic poles. The Mercator projection of a curve of constant bearing has four asymptotes, two at each pole, but little more than this can be deduced from the usual magnetic charts.

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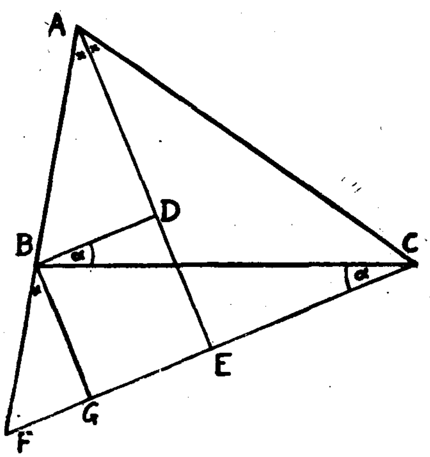
A geometrical proof of $\tan\frac{1}{2}(B-C)=\frac{b-c}{b+c}\cot\frac{1}{2}A$

By A. D. RUSSELL.



In the figure, ABC is a triangle with $B>C$; AF is made equal to AC, AE bisects the angle A, and $BDEG$ is a rectangle. It is easily seen that the angles marked α are equal, that $B-\alpha=C+\alpha$, and hence that $\alpha=\frac{1}{2}(B-C)$. Then:

$$\tan\tfrac{1}{2}(B-C)=\frac{BG}{CG}=\frac{BF\cos\frac{1}{2}A}{CE+DB}=\frac{(b-c)\cos\frac{1}{2}A}{b\sin\frac{1}{2}A+c\sin\frac{1}{2}A}=\frac{b-c}{b+c}\cot\tfrac{1}{2}A.$$

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