ROMANIAN MATHEMATICAL MAGAZINE

In acute ΔABC the following relationship holds:

$$\frac{tanB}{tanC}=\frac{sin^2B}{sin^2C}\Rightarrow b=c$$

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$$\frac{tanB}{tanC}=\frac{sin^2B}{sin^2C}\Rightarrow\frac{sinB}{sinC}\cdot\frac{cosC}{cosB}=\frac{sin^2B}{sin^2C}\Rightarrow\frac{cosC}{cosB}=\frac{sinB}{sinC}$$

$$sinBcosB=sinCcosC\Rightarrow 2sinBcosB=2sinCcosC$$

$$sin2B=sin2C\Rightarrow sin2B-sin2C=0$$

$$2sin(B-C)cos(B+C)=0\Rightarrow sin(B-C)=0$$

$$B-C=0\Rightarrow B=C\Rightarrow b=c$$