$$\sin\alpha+\sin\beta+\sin\gamma=4\cos\frac{\alpha}{2}\cos\frac{\beta}{2}\cos\frac{\gamma}{2}=\frac{s}{R}=\frac{\Delta}{Rr},$$

$$\sin^2\alpha+\sin^2\beta+\sin^2\gamma=\frac{s^2-4Rr-r^2}{2R^2},$$

$$\sin\beta\sin\gamma+\sin\gamma\sin\alpha+\sin\alpha\sin\beta=\frac{s^2+4Rr+r^2}{4R^2},$$

$$\sin\alpha\sin\beta\sin\gamma=\frac{1}{4}(\sin 2\alpha+\sin 2\beta+\sin 2\gamma)=\frac{rs}{2R^2}=\frac{abc}{8R^3},$$

$$(\sin\beta+\sin\gamma)(\sin\gamma+\sin\alpha)(\sin\alpha+\sin\beta)=\frac{s\,(s^2+2Rr+r^2)}{4R^3},$$

$$\sin^3\alpha+\sin^3\beta+\sin^3\gamma=\frac{s(s^2-6Rr-3r^2)}{4R^3},$$

$$\sin^4\alpha+\sin^4\beta+\sin^4\gamma=\frac{s^4-(8Rr+6r^2)s^2+r^2(4R+r)^2}{8R^4},$$

$$\frac{\sin\beta+\sin\gamma}{\sin\alpha}+\frac{\sin\gamma+\sin\alpha}{\sin\beta}+\frac{\sin\alpha+\sin\beta}{\sin\gamma}=\frac{s^2-2Rr+r^2}{2Rr},$$