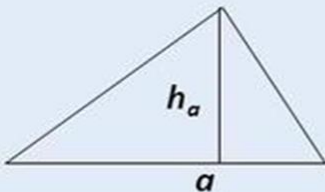




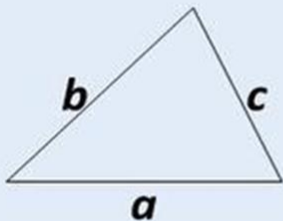
Agzamaxodjaeva M.Sh

I kurs. GEOMETRIYA

9 - Mavzu: Sinuslar teoremasi

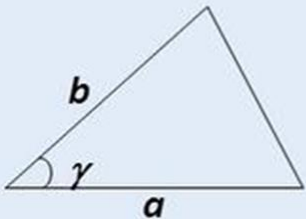


$$S = \frac{1}{2} a \cdot h_a$$



$$S = \sqrt{p(p-a)(p-b)(p-c)} \quad p = \frac{a+b+c}{2}$$

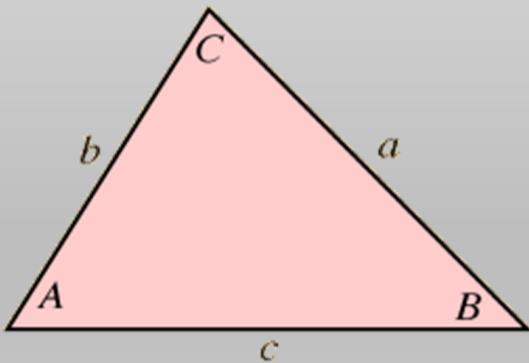
$$S = p \cdot r \quad S = \frac{abc}{4R}$$



$$S = \frac{1}{2} a \cdot b \cdot \sin \gamma$$

Sinuslar teoremasi

Sinuslar teoremasi — uchburchakning tomonlari, burchaklari va uchburchakka tashqi chizilgan aylana radiusi orasidagi bogʻlanishni ifodalovchi teorema, a , b , c — ixtiyoriy uchburchak tomonlari uzunliklari; A , B , C — shu tomonlar qarshisidagi burchaklar; R — uchburchakka tashqi chizilgan aylana radiusi boʻlsa, u holda ushbu



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$$



Isboti



TIAME

Uchburchak yuzini burchak sinusi orqali topish formulasiga ko'ra,

$$S = \frac{1}{2}ab \sin C, S = \frac{1}{2}bc \sin A, S = \frac{1}{2}ac \sin B.$$

Bu tenglikning dastlabki ikkitasiga ko'ra,

$$\frac{1}{2}ab \sin C = \frac{1}{2}bc \sin A$$

demak,

$$\frac{a}{\sin A} = \frac{c}{\sin C}.$$

Shunday qilib,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Agar ABC to'g'ri burchakli uchburchakga R radiusli aylana tashqi chizilgan bo'lsa, u holda

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$$

