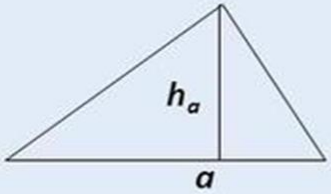
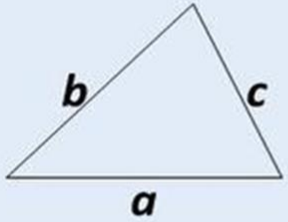
Agzamxodjaeva M.Sh

Mavzu: Sinuslar teoremasi

UCHBURCHAKni yuzani topish formulalari

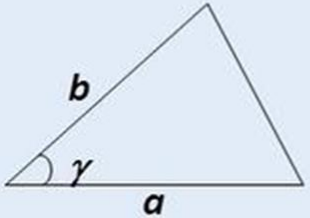


$$S=\frac{1}{2}a\cdot h_a$$



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

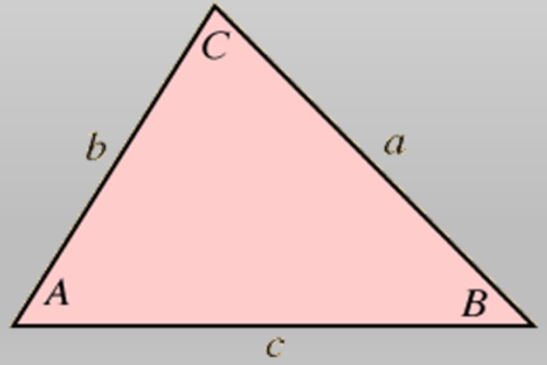
$$S=p\cdot r \qquad S=\frac{abc}{4R}$$



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

Sinuslar teoremasi

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



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

Isboti

Uchburchakyuziniburchaksinusiorqalitopishformulasigako‘ra,

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

Bu tenglikningdastlabkiikkitasigako’ra,

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

demak,

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

Shundayqilib,

$$\frac{a}{sinA} = \frac{b}{sinB} = \frac{c}{sinC}$$

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

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