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IXTIYORIY UCHBURCHAKNING UCHIDAN BIR TOMONIGA O‘TKAZILGAN TO‘G‘RI CHIZIQNING BA‘ZI XOSSALARI

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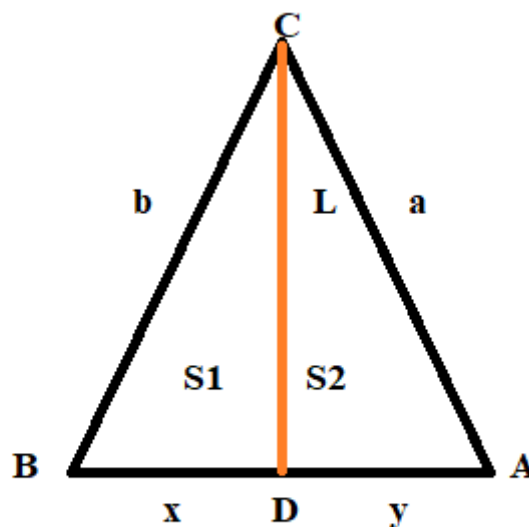
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Annotatsiya: Ushbu maqolada ixtiyoriy uchburchakning bir uchidan chiqib qarshisidagi tomoni x va y nisbatda bo‘lganda, $\frac{x}{y} = \frac{S_1}{S_2}$ nisbat teng ekanligini isbotlash va uchburchak uchidan chiqqan to‘g‘ri chiziqni uchburchak tomonlari orqali ifodalash usullari ko‘rsatilib o‘tilgan.

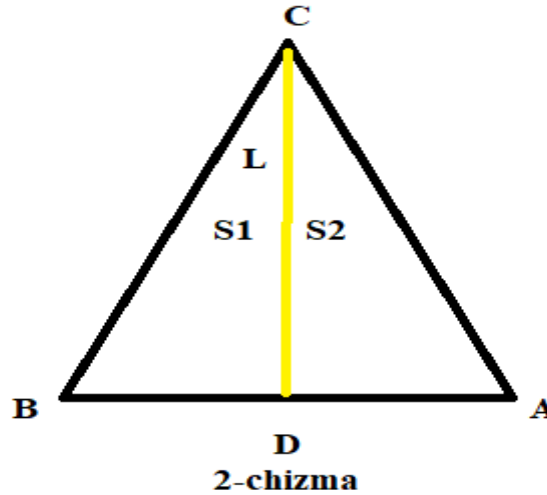
Ixtiyoriy ABC uchburchak berilgan. ABC uchburchakning bir uchidan chiqib qarama-qarshi tomonni x va y nisbatda bo‘ladi (**1-chizma**).



1-chizma

Birinchi navbatda $\frac{x}{y} = \frac{S_1}{S_2}$ nisbat teng ekanligining isbotini ko'rsatamiz.

I usul. Ixtiyoriy uchburchakning bir uchidan chiqqan L to'g'ri chiziq qarshisidagi tomonini x va y kesmalarga bo'ladi (**2-chizma**).



Agar CDA burchak α bo'lsa, u holda CDB burchak $180^\circ - \alpha$ ga teng bo'ladi.
CD=L.

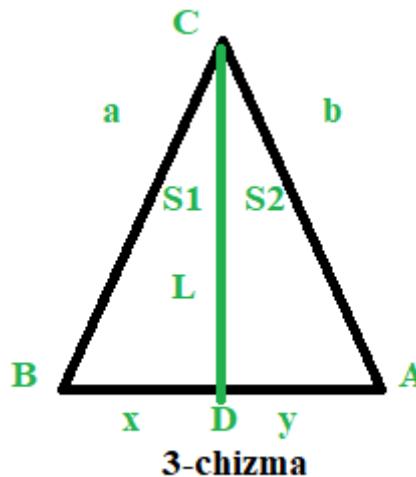
$$\begin{cases} S_1 = \frac{x \cdot L \cdot \sin(180^\circ - \alpha)}{2} \\ S_2 = \frac{y \cdot L \cdot \sin \alpha}{2} \end{cases} \text{ sistemalarni bo'lib yuboramiz.}$$

$$\frac{S_1}{S_2} = \frac{x \cdot L \cdot \sin(180^\circ - \alpha)}{y \cdot L \cdot \sin \alpha} = [\sin(180^\circ - \alpha) = \sin \alpha] = \frac{x}{y}$$

$$\frac{S_1}{S_2} = \frac{x}{y}$$

Masala isbotlandi.

II usul. Berilgan uchburchak bir tomonidan ixtiyoriy L to'g'ri chiziq qarshisidagi tomonni x va y kesalarga ajratadi. (**3-chizma**)



CBD burchak α gradus bo'lsa,

$$S_1 = \frac{x * a}{2}$$

$$S_2 = \frac{x * a * \sin \alpha}{2}$$

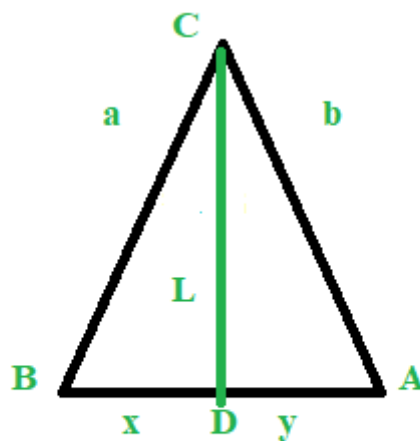
$$S = \frac{(x + y) * a * \sin \alpha}{2}$$

$$S_2 = S - S_1 = \frac{a * \sin \alpha}{2} * (x + y - x)$$

$$\begin{cases} S_1 = \frac{a * x * \sin \alpha}{2} \\ S_2 = \frac{a * y * \sin \alpha}{2} \end{cases}$$

$$\frac{S_1}{S_2} = \frac{x}{y}$$

Endi L to'g'ri chiziqni uchburchak tomonlari orqali ifodalash masalasini ko'rib o'tamiz. (4-chizma)



4 -chizma

$$b^2x + a^2y = (x + y) * (x + y + L^2)$$

$$b^2x + a^2y = x^2y + xy^2 + L^2x + L^2y$$

$$b^2x + a^2y = x^2y + xy^2 + L^2(x + y)$$

$$L^2(x + y) = b^2x + a^2y - x^2y - xy^2$$

$$L = \frac{\sqrt{b^2x + a^2y - x^2y - xy^2}}{x + y}$$

$$L = \sqrt{\frac{b^2x + a^2y}{(x + y)^2} - \frac{x^2y - xy^2}{(x + y)^2}}$$

FOYDALANILGAN ADABIYOTLAR:

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