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***I kurs. GEOMETRIYA***

***8 - Mavzu: Kosinuslar teoremasi***

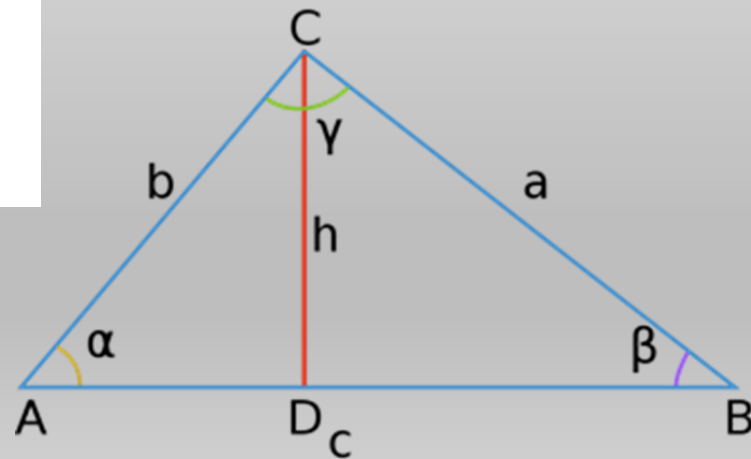
## Kosinuslar teoremasi

Kosinuslar teoremasi - uchburchak tomonining kvadrati qolgan ikki tomoni kvadratlari yig'indisidan shu tomonlar bilan ular orasidagi burchak kosinusi ikkilangan ko'paytmasi ayrilganiga teng

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cdot \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cdot \cos C$$





## Masala 1

Uchburchak tomonlari 1,  $3\sqrt{2}$  va 5 sm ga teng. Uchburchakning katta tomoni qarshisida yotgan burchakni toping.

### Yechilishi:

ABC uchburchakda  $a=1$  sm,  $b=3\sqrt{2}$  sm va  $c=5$  sm bo'lsin. Kosinuslar teoremasiga ko'ra,

$$c^2 = b^2 + a^2 - 2ab\cos\gamma,$$

u holda

$$\cos\gamma = (b^2 + a^2 - c^2)/2ab$$

$$\cos\gamma = \frac{(3\sqrt{2})^2 + 1^2 - 5^2}{2 \cdot 3\sqrt{2} \cdot 1} = -\frac{\sqrt{2}}{2}$$

Bundan  $\gamma = 135^\circ$