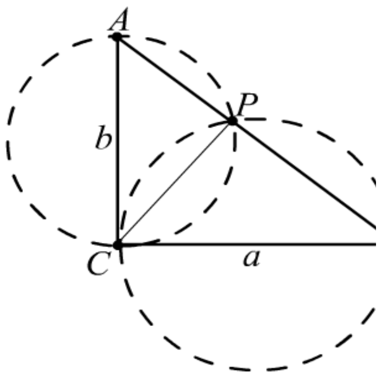
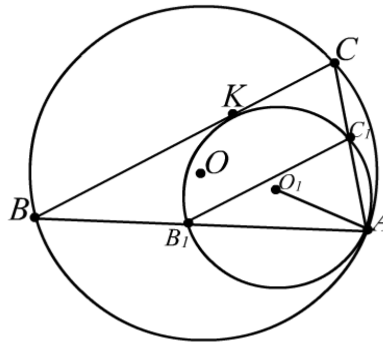
15-mazu:
Darsda yechiladigan misollar

1-masala. *ABC* to'g'ri burchakli uchburchakni *a* va *b* katetlarini diametr qilib chizilgan aylanalarning kesishgan *C* va *P* nuqtalari orasidagi masofani toping (73-chizma).



73-chizma



74-chizma

Yechish 73-chizmaga e'tibor bersak $\angle BPC = \angle APC = 90°$ ekanligini ko'ramiz, chunki bu burchaklar *BC* va *CA* diametrlarga tiralgan. Shunday qilib $\angle APB = 180°$, *B, P* va *A* nuqtalar bir to'g'ri chiziqda yotishi bilan birgalikda *P* nuqta, *C* uchdan gipotenuzaga tushirilgan perpendikulyarning asosi.

$\angle BCP = \angle CAP$, u holda $\Delta PBC \infty \Delta CBA$

bundan

$$\frac{|CP|}{|BC|} = \frac{|CA|}{|AB|},\ yani\ \frac{|CP|}{a} = \frac{b}{\sqrt{a^2+b^2}};\quad |CP| = \frac{ab}{\sqrt{a^2+b^2}}$$

2-masala. Ikkita $S_1(O,r)$ va $S_2(O_1,r_1)$ aylanalar *A* nuqtada ichki urinadi . S_1 ichki aylananing ixtiyoriy *K* nuqtasiga *BC* urinma kesma o'tkazilgan . Bu kesmani *K* nuqta *BK* va *KC* kesmalarga ajratadi. Bu kesmalar urinish nuqtadan bir xil burchak ostida ko'rinishini isbotlang.(74-chizma)

Isboti. $\mathbf{G}_A^k(O)=O_1$ gomotetiya olamiz. Bu gomotetiyada $\mathbf{G}_A^k(S)=S_1$ o'tadi, $\mathbf{G}_A^k(AB)=AB$, $\mathbf{G}_A^k(AC)=AC$ to'g'ri chiziqlar o'z-o'ziga o'tadi.

$\mathbf{G}_A^k(B)=B_1$ $\mathbf{G}_A^k(C) = C_1 \Rightarrow \mathbf{G}_A^k(BC)=B_1C_1$. Bundan $BC||B_1C_1$ kelib chiqadi. Agar urinma vatarga parallel bo'lsa, urinish nuqtasi vatarni tortib turgan yoyni teng ikkiga bo'ladi. Bundan $<CAK = <KAB$ kelib chiqadi.