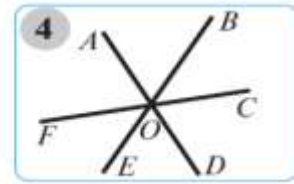
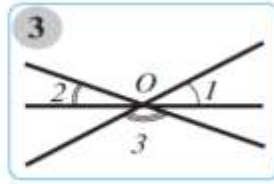
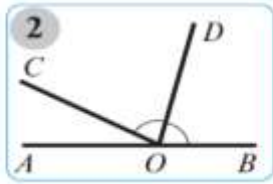
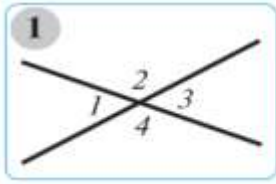
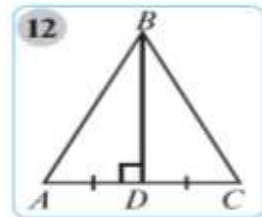
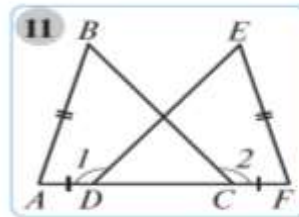
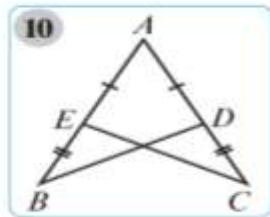
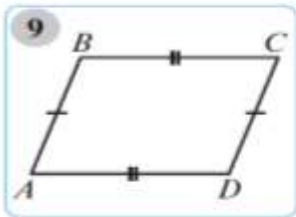


10. Bir nuqtada kesishuvchi uchta to'g'ri chiziq berilgan (3- rasm). $\angle 1 + \angle 2 + \angle 3 = 180^\circ$ ekanini isbotlang.
11. 4- rasmda $\angle AOB = 50^\circ$ va $\angle FOE = 70^\circ$. AOC , BOD , COE va COD bur-chaklarni toping.



24. Uchburchakning ikki tomoni 0,5 va 8,7 ga teng. Uchinchi tomoni uzunligi natural son ekanini bilgan holda shu tomonni toping.



37. 10- rasmda $AB = AC$ va $AE = AD$. $BD = CE$ ekanini isbotlang.
38. 11- rasmda $AD = CF$, $AB = FE$ va $CB = DE$. $\angle 1 = \angle 2$ ekanini isbotlang.

12. $ABCD$ to'rtburchakning perimetri 22 sm ga teng. Agar AB tomoni BC tomondan 2 sm ga katta hamda DA va CD tomonlarining har bi-ridan 2 sm ga kichik bo'lsa, uning BC tomonini toping.

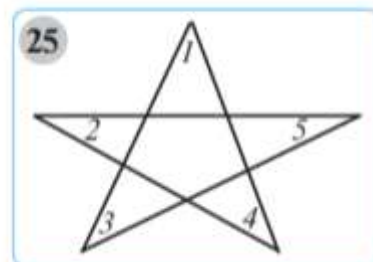
24. Ichki burchaklar yig'indisi uning har bir uchidan bittadan olingan tashqi burchaklari yig'indisidan 6 marta katta bo'lgan ko'pburchakning tomoni nechta?

25. Qanday qavariq n burchakda uning hamma burchaklari: 1) o'tmas; 2) to'g'ri; 3) o'tkir bo'lishi mumkin?

26. Ixtiyoriy beshburchakli yulduzcha o'tkir bur-chaklarining yig'indisi nimaga teng (25- rasm)?

27. Ko'pburchak ichki burchaklarining va bitta tashqi burchagining yig'indisi 1000° ga teng. Shu ko'pburchakning tomonlari soni nechta?

28. 1) O'nuchburchakning; 2) o'nburchakning;

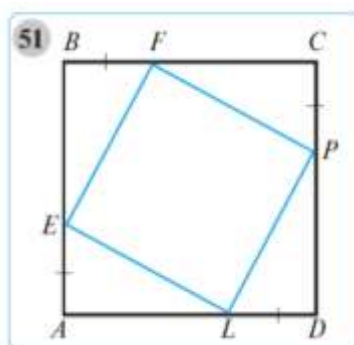
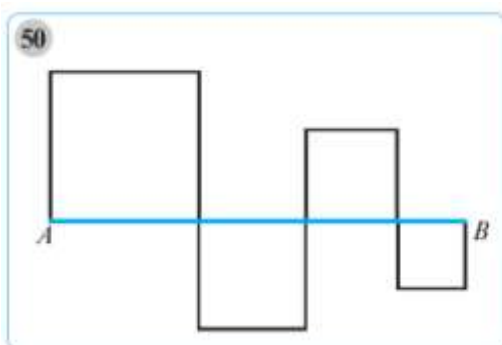


38. Parallelogrammning qo'shni tomonlari yig'indisi 20 sm ga, ayirmasi esa 12 sm ga teng. Shu parallelogramm tomonlarini toping.

39. Parallelogramm diagonallarining kesishish nuqtasi orqali to'g'ri chiziq o'tkazilgan. Shu to'g'ri chiziqning parallelogramm parallel tomonlari orasidagi kesmasi bu nuqtada teng ikkiga bo'linishini isbotlang.

48. $ABCD$ parallelogrammning BC tomoni o'rtasi E nuqtadan, AD tomoni o'rtasi F nuqtadan iborat. $BEDF$ to'rtburchakning parallelogramm eka-nini isbotlang.

- 70.** Isbot qiling: 1) hamma tomonlari teng to'rtburchak rombdir;
2) ikkita qo'shni tomoni teng parallelogramm rombdir.
- 71.** Parallelogrammning diagonallari o'zaro perpendikular bo'lganda va faqat shundagina uning romb bo'lishini isbot qiling.
- 81.** $AB = 19$ sm li kesmaga kvadratchalar yasalgan bo'lib, ularning bir tomoni AB tomonda, ikkita qo'shni kvadratlar umumiy uchga ega va AB dan turli tomonda joylashgan (50- rasm). Kvadratlarning AB kesmada yotmagan tomonlari uzunliklari yig'indisini toping.
- 82.** 1) Berilgan: $ABCD$ – kvadrat, $AE = BF = CP = DL$ (51- rasm).
Isbot qilish kerak: $EFPL$ – kvadrat ekanligini.
2) Agar kvadrat tomonlarining o'rtalari ketma-ket to'g'ri chiziq kesmasi bilan birlashtirilsa, natijada qanday shakl hosil bo'ladi?
3) To'rtburchakning kvadrat ekanligini tekshirish uchun diagonallarining tengligini va perpendikularligini tekshirish kifoya qiladimi?

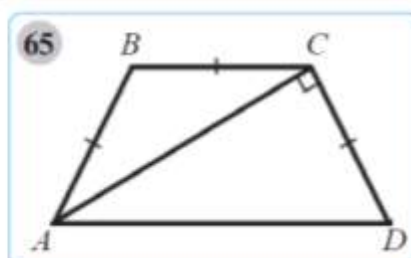


- 91.** To'g'ri to'rtburchak tomonlarining o'rtalari rombning uchlari ekanini isbotlang. Va aksincha, romb tomonlarining o'rtalari to'g'ri to'rtburchakning uchlari ekanini isbotlang.
- 92.** 1) ABC uchburchakning A , B va C uchlari orqali qarshisida yotgan tomonlarga parallel qilib o'tkazilgan to'g'ri chiziqlardan hosil bo'lgan $A_1B_1C_1$ uchburchakning tomonlari A , B va C nuqtalarda teng ikkiga bo'linadi. Shuni isbot qiling.
2) $AB = 12$ sm, $BC = 24$ sm, $AC = 30$ sm deb, masalaning birinchi qismida ko'rsatilgandek yasalgan uchburchak tomonlarini toping.

- 118.** 1) Teng yonli trapetsiyaning diagonallari teng ekanligini isbot qiling.
2) Teng yonli trapetsiyaning balandligi yon tomonidan ikki marta kichik. Shu trapetsiyaning burchaklari nimaga teng?

- 119.** Teng yonli trapetsiyaning kichik asosi yon tomoniga teng, diagonali yon tomoniga perpendikular (65- rasm). Uning burchaklarini toping.

- 120.** Teng yonli trapetsiyaning qarama-qarshi burchaklari ayirmasi 70° ga teng. Uning burchaklarini toping.



132. Trapetsiyaning o'rta chizig'i uning balandligini teng ikkiga bo'ladi. Shuni isbot qiling.

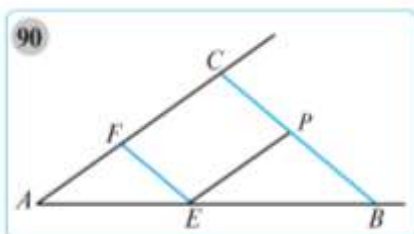
133. $ABCD$ trapetsiyaning tomonlari ma'lum: $AB=4$ sm, $BC=6$ sm, $CD=5$ sm, $AD=10$ sm. Agar EF — trapetsiyaning o'rta chizig'i bo'lsa, $AEFD$ trapetsiyaning tomonlari nimaga teng?

168. Ikkita AB va CD kesmalar berilgan. E va F nuqtalar, mos ravishda, AB va CD kesmalarda yotadi. AE , EB va CF , FD kesmalar proporsional. $AB \cdot FD = CD \cdot EB$ ekanini isbotlang.

169. Agar parallel to'g'ri chiziqlar A burchakning tomonlarini B , C va E , F nuqtalarda kessa, u holda

$$\frac{BC}{EF} = \frac{AB}{AE}$$

tenglik o'rinlidir (90- rasm). Ko'rsatma. Qo'shimcha $EP \parallel AC$ o'tkazilgan.



178. Teng yonli trapetsiyaning o'rta chizig'i balandligiga teng bo'lsa, diagonallari o'zaro perpendikular bo'ladi. Shuni isbot qiling.

179. Uchburchak uchlaridan uning qarama-qarshi tomonlariga parallel to'g'ri chiziqlar o'tkazilgan. Hosil bo'lgan uchburchakning tomonlari berilgan uchburchak tomonlaridan ikki marta katta ekanini isbotlang.

268. $ABCD$ kvadrat AD tomonining davomida D uchidan tashqarida P nuqta shunday olinganki, unda $PC=20$ sm va $\angle CPD=30^\circ$. Kvadratning yuzini toping.

277. To'g'ri to'rtburchakning bo'yini n marta va enini k marta uzaytirilsa, uning yuzi qanday o'zgaradi?

278. $ABCD$ to'g'ri to'rtburchak B burchagining bissektrisasi AD tomonni K nuqtada kesadi, $AK=5$ sm va $KD=7$ sm. Shu to'g'ri to'rtburchakning yuzini toping.

324. AD — $ABCD$ trapetsiyaning katta asosi. ACD va DCB uchburchaklarning yuzlari, mos ravishda, S_1 va S_2 ga teng. Trapetsiyaning yuzini toping.

364. O'tkir burchakli ABC uchburchakda BP — balandlik.
 $BC^2 = AB^2 + AC^2 - 2AC \cdot AP$ ekanini isbotlang.

373. Kateti va ikkinchi katetga o'tkazilgan medianasiga ko'ra to'g'ri burchakli uchburchaklarning tengligini isbotlang.

374. Kateti va shu katetga o'tkazilgan medianasiga ko'ra to'g'ri burchakli uchburchaklarning tengligini isbotlang.

389. Rombning diagonallari 18 dm va 24 dm. Shu rombning perimetri va parallel tomonlar orasidagi masofani toping.

396. $ABCD$ to'g'ri to'rtburchakning BC tomonida P nuqta shunday belgilanganki, unda $AP = 15$ sm, $BA = 12$ sm, $PC = 6$ sm. $APCD$ to'rtburchakning yuzini toping.

459. Perimetri 56 sm ga teng bo'lgan trapetsiyaga aylana ichki chizilgan. Trapetsiyaning ketma-ket uchta tomoni nisbati $2 : 7 : 12$ kabi. Shu trapetsiyaning tomonlarini toping.

460. Katetlari a va b , gipotenuzasi c ga teng bo'lgan to'g'ri burchakli uchburchakka ichki chizilgan aylana radiusi $r = \frac{a + b - c}{2}$, shu uchburchakning perimetri esa $P = 2(c + r)$ formula bilan hisoblanadi. Shuni isbotlang.

461. To'g'ri burchakli uchburchakning katetlari: 1) 40 sm va 30 sm; 2) 9 dm va 40 dm; 3) 0,5 m va 1,2 m; 4) 0,7 dm va 24 sm; 5) 0,9 sm va 1,2 sm; 6) 12 sm va 16 sm ga teng. Shu uchburchakning perimetri va unga ichki chizilgan aylana radiusini toping.

476. Teng tomonli uchburchakka tashqi va ichki chizilgan aylanalarning markazlari ustma-ust tushadi. Bunda tashqi chizilgan aylananing radiusi ichki chizilgan aylana radiusidan ikki marta katta bo'lishini isbotlang.

477. Teng yonli trapetsiyaning yon tomoni kichik asosiga teng, asosidagi burchak 60° ga teng. Shu trapetsiyaga tashqi chizilgan aylananing markazi qayerda joylashgan?

478. Aylananing radiusi R ga teng. Shu aylanaga ichki chizilgan teng tomonli uchburchak medianasining uzunligini toping.

510. $ABCD$ — to'g'ri to'rtburchak. Quyidagi yozuvlardan qaysi biri ma'noga ega:

- 1) $\overline{AD} < \overline{AC}$; 3) $\overline{AC} = \overline{BD}$; 5) $\overline{AB} = \overline{DC}$;
2) $|\overline{AD}| < |\overline{AC}|$; 4) $|\overline{AC}| = |\overline{BD}|$; 6) $|\overline{AB}| = |\overline{DC}|$?

511. Agar: 1) $\overline{AD} = \overline{BC}$ va $|\overline{AD}| = |\overline{DC}|$; 2) $\overline{AD} \uparrow\uparrow \overline{BC}$, \overline{AB} va \overline{DC} vektorlar esa nokollinear bo'lsa, $ABCD$ to'rtburchakning turini aniqlang.

512. $\overline{AB} = \overline{CD}$ ekanligi ma'lum. Ushbu tasdiqlar to'g'rimi:

- 1) $AB \parallel CD$; 2) $|AB| = |CD|$?

522. $ABCD$ parallelogrammda: $\overline{CA} = \vec{a}$, $\overline{CD} = \vec{b}$. \overline{AB} , \overline{BC} , \overline{DA} vektorlarni \vec{a} va \vec{b} vektorlar orqali ifodalang.

523. E va F — ABC uchburchakning AB va AC tomonlarining o'rtalari. \overline{BF} , \overline{EC} , \overline{EF} va \overline{BC} vektorlarni $\vec{a} = \overline{AE}$ va $\vec{b} = \overline{AF}$ vektorlar orqali ifodalang.

524. $ABCD$ — ixtiyoriy to'rtburchak. $\overline{AB} + \overline{BC} = \overline{AD} + \overline{DC}$ ekanini isbotlang.

542. AB va CD kesmalar O nuqtada kesishadi. $AO = 2OB$ va $OD = 2OC$. Vektordan foydalanib, $BC \parallel AD$ va $BC = \frac{1}{2}AD$ ekanini isbot qiling.

543. $ABCD$ — parallelogramm va uning diagonallari kesishgan O nuqta berilgan. $\overline{OA} + \overline{OC} = \overline{OB} + \overline{OD}$ ekanini isbotlang.

544. $ABCD$ — parallelogramm va shu parallelogrammdan tashqarida yotuvchi ixtiyoriy O nuqta berilgan.

1) \overline{OD} vektorni \overline{OA} , \overline{OB} va \overline{OC} vektorlar orqali ifodalang.

2) $\overline{OA} + \overline{OC} = \overline{OB} + \overline{OD}$ ekanini isbotlang.

545. E va F nuqtalar $ABCD$ to'rtburchakning AC va BD diagonallarining o'rtasi. $\overline{EF} = \frac{1}{2}(\overline{AD} + \overline{CB})$ ekanini isbotlang.