Matematika-9

1-bilet

1.Ifoda ma'noga ega emasligini isbotlang. $\frac{8,2\cdot5-4}{\left(\frac{1}{6}-1\frac{2}{3}\cdot0,2\right):\frac{2}{3}+\frac{1}{4}}=\frac{41+4}{\left(\frac{1}{6}-\frac{1}{3}\right):\frac{2}{3}+\frac{1}{4}}=\frac{45}{\left(-\frac{1}{6}\right)\frac{3}{2}+\frac{1}{4}}=\frac{45}{-\frac{1}{4}+\frac{1}{4}}=\frac{45}{0}$ ***J; ∅***

2.Ifodani soddalshtiring. $\left(\frac{y^2-x^2}{m^2-n^2}\cdot\frac{m+n}{x-y}-\frac{x}{n-m}\right)\cdot\frac{m-n}{2y}=\left(\frac{-(x-y)(x+y)}{(m-n)(m+n)}\cdot\frac{(m+n)}{(x-y)}-\frac{x}{n-m}\right)\cdot\frac{m-n}{2y}=\left(\frac{x+y}{n-m}-\frac{x}{n-m}\right)\cdot\frac{m-n}{2y}=-\frac{y}{m-n}\cdot\frac{m-n}{2y}=-\frac{1}{2}$ ***J;-*** $\frac{1}{2}$

3. Arifmetik progressiyaning uchinchi va to'qqizinchi hadlari yig'indisi 16 ga teng. Shu progressiyaning dastlabki o'n uchta hadi yig'indisini toping.

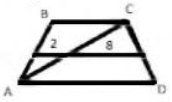
$a_3+a_9=16$; $S_{13}=a_1+a_2+a_3+\ldots+a_{12}+a_{13}$; $a_1+a_{13}=a_2+a_{12}=a_3+a_{11}=\ldots a_5+a_9=16$ ***J: Aniqlab bo'lmaydi chunki xato berilgan***

4. O'tkir burchak sinusi, kosinusi, tangensi va kotangensi ta'riflari.

To`g`ri burchakli uchburchak o`tkir burchagining sinusi deb, shu burchak qarshisidagi katetning gipotenuzaga nisbatiga aytiladi. To`g`ri burchakli uchburchak o`tkir burchagining kosinusi deb, shu burchakka yopishgan katetning gipotenuzaga nisbatiga aytiladi.
To`g`ri burchakli uchburchak o`tkir burchagining tangensi deb, shu burchak qarshisidagi katetning yopishgan katetiga nisbatiga aytiladi.
To`g`ri burchakli uchburchak o`tkir burchagining kotangensi deb, shu burchakka yopishgan katetning qarshisidagi katetga nisbatiga aytiladi

5. x+25%x=10; x+0.25x=10; 1.25x=10 x=8

Demak, Trapetsiyaning diagonali o'rta chiziqni ikki qismga ajratadi, bizda ABC uchburchak uchun MF to'g'ri chiziq o'rta chiziq bo'ladi, ACD uchburchak uchun FN o'rta chiziq. Uchburchakni o'rta chizig'I asosini yarmiga teng. Shundan trapetsiyaning kichik asosi 8 ga teng, katta asosi esa 32 ga teng bo'ladi. ***J; a=4 b=16***



2-bilet

1. Hisoblang: $\frac{\left((5,2^2:2,6+8,1)^2-6,5^2\right):0,025}{(60,192:2,4-1,08)^2-0,24\cdot1400}=\frac{\left((10,4+8,1)^2-6,5^2\right):0,025}{(25,08-1,08)^2-336}=\frac{(18,5^2-6,5^2):0,025}{576-336}=\frac{(18,5+6,5)(18,5-6,5)\cdot40}{240}=\frac{25\cdot12\cdot40}{240}=50;$ ***J; 50***

2. Tengsizliklar sistemasini yeching: $\begin{cases}x+12>-0,75\\\frac{1,5x+2}{4}<\frac{1,5x+3}{2}\end{cases}\Rightarrow\begin{cases}x>-12,75\\\frac{1,5x+2-2x-6}{4}<0\end{cases}\Rightarrow\begin{cases}x>-12,75\\\frac{0,5x+4}{4}>0\end{cases}\Rightarrow\begin{cases}x>-12,75\\x>-8\end{cases}$ ***J;*** $x\in(-8;\infty)$

3. $\begin{cases}4x-1,5y=18/\cdot2\\\frac{2}{3}x-2y=10/\cdot3\end{cases}\Rightarrow\begin{cases}8x-3y=36/\cdot2\\2x-6y=30\end{cases}\Rightarrow-\begin{cases}16x-6y=72\\2x-6y=30\end{cases}\Rightarrow14x=42\quad x=3\quad y=-4\quad x^2+px+q=0\Rightarrow$

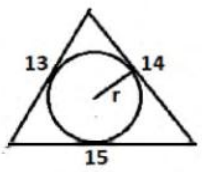
$\begin{cases}x+y=-p\\x\cdot y=q\end{cases}\Rightarrow\begin{cases}p=1\\q=-12\end{cases}$ ***J; p=1 q=-12***

4. Kosinuslar teoremasini ta'riflang va isbotlang.

Uchburchak istalgan tomonining kvadrati qolgan ikki tomoni kvadratlari yig`idisi shu ikki tomon bilan ular orasidagi burchak kosinusi ko`paytmasining ikkilangani ayirmasiga teng. TEOREMA ISBOTI:
ABC uchburchakning BD balandligini o`tkazamiz. D nuqta AC tomonda yoki uning davomida bo`lishi mumkin. To`gri burchakli BCD uchburchakda Pifagor teoremasiga ko`ra, $BC^2=BD^2+DC^2$. DC=AC−AD bo`lgani uchun: $BC^2=BD^2+(AC-AD)^2=BD^2+AC^2-2\cdot AC\cdot AD+AD^2$.
To`g`ri burchakli ABD uchburchakda $BD^2+AD^2=AB^2$ va AD=ABcosA ekanligini hisobga olib, oxirgi tenglikdan $BC^2=AB^2+AC^2-2\cdot AB\cdot AC\cdot cosA$, ya`ni $a^2=b^2+c^2-2\cdot bc\cdot cosA$ tenglikka ega bo`lamiz! TEOREMA ISBOTLANDI

5.Tomonlari 26, 28, 30 ga teng bo'lgan uchburchakka ichki chizilgan aylana radiusini toping.

p=(a+b+c):2=(26+28+30):2=84:2=42. $S=\sqrt{p(p-a)(p-b)(p-c)}=\sqrt{42\cdot16\cdot14\cdot12}=336\quad r=\frac{S}{p}=\frac{336}{42}=8$ ***J; r=8***



3-bilet

1. Hisoblang: $2,8:\left(2\frac{4}{5}\cdot\left(8,75-2\frac{1}{2}\right)\right)\cdot7,25-3\frac{3}{4}:\left(\left(1,2+5\frac{1}{20}\right)\cdot3,75\right)=\quad2,8:\left(\frac{14}{5}\cdot6,25\right)\cdot7,25-\frac{15}{4}:(6,25\cdot3,75)=$

$=2,8:17,5\cdot7,25-3,75:23,4375=1,16-0,16=1.$ ***J; 1***

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