2-variant 2017 yil spectrum

@axborotnoma

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Javob: 200.

2-variant

1. $y = f(x)$ funksiya D to'plamda noqat'iy o'suvchi bo'lsin. D to'plamdan olingan ixtiyoriy a, b elementlari uchun $(a > b)$ quyidagi munosabatlardan qaysi biri o'rinli?

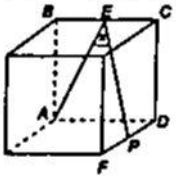
Yechish:

$y = f(x)$ funksiya D to'plamda noqat'iy o'suvchi bo'lsa, D to'plamdan olingan ixtiyoriy a, b elementlar uchun $(a > b)$

$f(a) \geq f(b)$ yoki $f(b) \leq f(a)$ munosabat o'rinli bo'ladi.

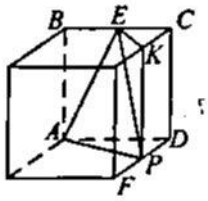
Javob: $f(b) \leq f(a)$.

2. Shakli berilgan kub uchun BE = EC, FP = PD bo'lsa, cosx ni toping.



Berilgan:
$BE = EC$
$FP = PD$
$\angle AEP = x$
$\cos x = ?$

Yechish:



$AB = BC = a$, $BE = EC = FP = PD = \frac{a}{2}$

1) ΔABE da:

$$AE^2 = AB^2 + BE^2 = a^2 + \frac{a^2}{4} = \frac{5a^2}{4}$$

2) ΔEKP da: $EP^2 = EK^2 + PK^2$

$$EK^2 = EC^2 + KC^2 = \frac{a^2}{4} + \frac{a^2}{4} = \frac{a^2}{2}$$

$$EP^2 = \frac{a^2}{2} + a^2 = \frac{3a^2}{2}$$

3) ΔADP da

$$AP^2 = AD^2 + PD^2 = a^2 + \frac{a^2}{4} = \frac{5a^2}{4}$$

4) ΔAEP da $\angle AEP$ ni kosinuslar teoremasiga asosan topamiz.

$$\cos x = \frac{AE^2 + EP^2 - AP^2}{2 \cdot AE \cdot EP} = \frac{\frac{5a^2}{4} + \frac{3a^2}{2} - \frac{5a^2}{4}}{2 \cdot \frac{\sqrt{5}a}{2} \cdot \frac{a\sqrt{3}}{\sqrt{2}}} = \frac{\sqrt{3}}{\sqrt{10}} = \frac{\sqrt{30}}{10}$$

Javob: $\frac{\sqrt{30}}{10}$

3. Agar $[m] = [n]$ bo'lsa, (x) va $\{x\}$ mos ravishda x ning butun va kasr qismi), u holda a va b haqiqiy sonlar uchun qanday munosabat doim o'rinli?

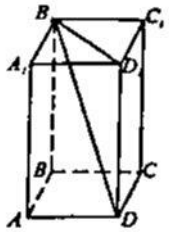
Yechish:
Agar $[m] = [n]$ bo'lsa, $[m] - [n] = 0$
$m - n = [m] + \{m\} - ([n] + \{n\}) =$
$= [m] + \{m\} - [n] - \{n\} = \{m\} - \{n\}$ bo'ladi.
Demak, $[m] = [n]$ da, $m - n = \{m\} - \{n\}$.

Javob: $m - n = \{m\} - \{n\}$.

4. Muntazam to'rtburchakli prizma asosining yuzi 36 ga teng. Agar prizmanin diagonali yon qirrasi bilan 30° li burchak tashkil etsa, prizmaning yon sirti nimaga teng

Berilgan:
$ABCDA_1B_1C_1D_1$ – muntazam to'rtburchakli prizma.
$S_{asos} = 36$
$\angle B_1DD_1 = 30°$
$S_{yon} = ?$

Yechish:



1) $S_{yon} = P \cdot H$
$AB = BC = a$, $P = 4a$
2) $S_{asos} = a^2 = 36$, $a = 6$
3) $B_1D_1^2 = A_1B_1^2 + A_1D_1^2 = a^2 + a^2 = 2a^2$,
$B_1D_1 = 6\sqrt{2}$
4) ΔB_1D_1D to'g'ri burchakli

$$tg30° = \frac{B_1D_1}{DD_1}, \quad DD_1 = \frac{6\sqrt{2}}{tg30°} = 6\sqrt{6} = H.$$

5) $S_{yon} = 4a \cdot H = 4 \cdot 6 \cdot 6\sqrt{6} = 144\sqrt{6}$.

Javob: $144\sqrt{6}$.

5. Shar radiusi 4 marta kattalashtirilsa, uning hajmi necha barobar oshadi?

Yechish:
R – shar radiusi

$R_1 = 4R$, $\frac{R_1}{R} = 4$,

$\frac{V_1}{V} = ?$

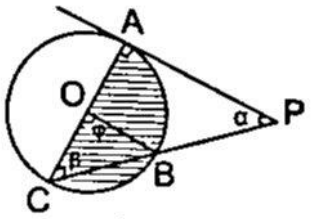
$$V = \frac{4}{3}\pi R^3, \quad V_1 = \frac{4}{3}\pi R_1^3$$

$$\frac{V_1}{V} = \frac{\frac{4}{3}\pi R_1^3}{\frac{4}{3}\pi R^3} = \left(\frac{R_1}{R}\right)^3 = 4^3 = 64.$$

Javob: 64.

6. Markazi O nuqtada bo'lgan aylanadan tashqaridagi P nuqtadan aylanaga PC kesuvchi va PA = 4 urinmalar o'tkazilgan. Kesuvchi bilan aylana B nuqtasida kesishishadi. PB = 2, $\angle APC = 60°$, $\angle PCA = 30°$. AC va BC vatarlar bilan va AB yoy bilan chegaralangan soha yuzasini toping.

Yechish:



$PA = 4,\ PB = 2$
$\angle APC = 60°$
$\alpha = 60°$
$\angle PCA = 30°$
$\beta = 30°$
$S = ?$

1) $S = S_{\Delta COB} + S_{sektor}$
$\angle APC = 60°,\ \angle PCA = 30°$ dan
$\angle PAC = 90°$ ligi kelib chiqadi.

2) $PA^2 = PB \cdot PC$
$4^2 = 2 \cdot PC,\ PC = 8,\ BC = 8 - 2 = 6.$

3) ΔCOB teng yonli, $CO = OB = R,\ BC = 6.$
$\angle OCB = \angle CBO = 30°,$
$\angle COB = 120°,\ \varphi = 120°.$

4) $\dfrac{CB}{\sin 120°} = \dfrac{OB}{\sin 30°},$

$$OB = \frac{6 \cdot \frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{6}{\sqrt{3}} = 2\sqrt{3}.$$

5) $$S_{\Delta COB} = \frac{R^2 \cdot \sin\varphi}{2} = \frac{(2\sqrt{3})^2 \cdot \sin 120°}{2} =$$

$$= \frac{12 \cdot \frac{\sqrt{3}}{2}}{2} = 3\sqrt{3}$$

6) $$S_{sektor} = \frac{\pi R^2 (180° - \varphi)}{360°} = \frac{\pi \cdot (2\sqrt{3})^2 \cdot 60°}{360°} =$$

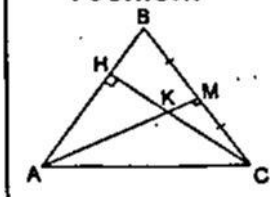
$$= \frac{12\pi}{6} = 2\pi$$

7) $S = 2\pi + 3\sqrt{3}.$

Javob: $2\pi + 3\sqrt{3}.$

7. ABC uchburchakning AM medianasi va CH balandlik K nuqtada shunday kesishadiki, CK:KH = 5:1. A nuqtadan boshlab H nuqta AB tomonni qanday nisbatda ajratadi?

Yechish:



ΔABC da
AM mediana
CH balandlik
CK:KH = 5:1
AH:HB = ?

1) Menelay teoremasiga ko'ra

$$\frac{AH}{AB} \cdot \frac{BM}{MC} \cdot \frac{CK}{KH} = 1$$

$$\frac{AH}{AB} \cdot \frac{\frac{a}{2}}{\frac{a}{2}} \cdot \frac{5}{1} = 1,\ \frac{AH}{AB} = \frac{1}{5}.$$

$$\frac{AH}{AH + HB} = \frac{1}{5}$$

$5AH = AH + HB$
$4AH = HB,$

$$\frac{AH}{HB} = \frac{1}{4}.$$

Javob: 1:4.

8. $\dfrac{x^4 - 1}{x^2 + 3}$ ifodaning x = 1 dagi qiymatining butun qismini toping.

Yechish:

$\dfrac{x^4 - 1}{x^2 + 3};$
$x = 1.$

1) $$\frac{x^4 - 1}{x^2 + 3} = x^2 - 3 + \frac{8}{x^2 + 3}$$

2) ifodaning butun qismi $x^2 - 3$.
3) $x = 1$ da
$x^2 - 3 = 1 - 3 = -2.$

Javob: –2.

9. Bir ishchi maoshining $\frac{1}{4}$ qismini uy, haqiga, $\frac{1}{6}$ qismini esa boshqa xarajatlarga ishlatganida yana 70000 so'm qoldi. Ishchining maoshi qancha?

Yechish:

x – ishchining maoshi

$\frac{x}{4}$ – uy haqi, $\frac{x}{6}$ – boshqa xarajatlar

$\frac{x}{4}+\frac{x}{6}+70000=x,\ x-\frac{5x}{12}=70000,$

$\frac{7x}{12}=70000,\ x=120000.$

Javob: 120000.

10. Soddalashtiring:

$$\frac{\cos\left(\frac{5\pi}{2}-8\alpha\right)+\sin(\pi+6\alpha)+\sin(3\pi-\alpha)}{\sin\left(\frac{9\pi}{2}+8\alpha\right)+\cos(6\pi-6\alpha)+\cos\alpha}$$

Yechish:

1) $\cos\left(\frac{5\pi}{2}-8\alpha\right)=\sin 8\alpha,$

$\sin(\pi+6\alpha)=-\sin 6\alpha$

$\sin(3\pi-\alpha)=\sin\alpha,$

$\sin\left(\frac{9\pi}{2}+8\alpha\right)=\cos 8\alpha$

$\cos(6\pi-6\alpha)=\cos 6\alpha$

2) $\frac{\sin 8\alpha-\sin 6\alpha+\sin\alpha}{\cos 8\alpha+\cos 6\alpha+\cos\alpha}=$

$=\frac{2\sin\alpha\cos 7\alpha+\sin\alpha}{2\cos\alpha\cos 7\alpha+\cos\alpha}=$

$=\frac{\sin\alpha(2\cos 7\alpha+1)}{\cos\alpha(2\cos 7\alpha+1)}=tg\alpha.$

Javob: $tg\alpha$.

11. $tg\alpha=2$ bo'lsa, $\frac{11}{2+\cos 2\alpha+\sin 2\alpha}$ ning qiymatini toping.

Yechish:

$tg\alpha=2,\ \frac{11}{2+\cos 2\alpha+\sin 2\alpha}=?$

1) $\cos 2\alpha=\frac{1-tg^2\alpha}{1+tg^2\alpha}=\frac{1-2^2}{1+2^2}=\frac{1-4}{1+4}=\frac{-3}{5}$

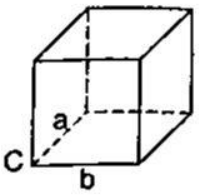
$\sin 2\alpha=\frac{2tg\alpha}{1+tg^2\alpha}=\frac{2\cdot 2}{1+4}=\frac{4}{5}$

2) $\frac{11}{2+\cos 2\alpha+\sin 2\alpha}=\frac{11}{2-\frac{3}{5}+\frac{4}{5}}=\frac{11}{\frac{11}{5}}=5.$

Javob: 5.

12. To'g'ri parallelepipedning uchta o'lchovi bo'yicha sirtini toping: 10 sm, 22 sm, 16 sm.

Yechish:



To'g'ri burchakli parallelepipedning uchta o'lchovi bo'yi, eni, balandligi.

$S_{tola}=2S_{asos}+S_{yon}$

$S_{asos}=a\cdot b$

$S_{yon}=P\cdot c=2(a+b)\cdot c$

$S_{tola}=2ab+2ac+2bc=2(ab+ac+bc)=$

$=2\cdot(10\cdot 22+10\cdot 16+22\cdot 16)=1464.$

Javob: 1464.

13. $a, b \in N,\ b=\frac{a+3}{4}+\frac{a+3}{5}$ bo'lsa, a eng kamida nechaga teng?

Yechish:

$a, b \in N\ b=\frac{9(a+3)}{20}$ b natural son bo'lishi uchun 9(a + 3) ifoda 20 ga qoldiqsiz bo'linishi kerak.

$a = 17$ da $b \in N$ bo'ladi.

Javob: 17.

14. Radiusi 3 ga teng bo'lgan sharga yasovchisi 4 ga teng bo'lgan konus ichki chizilgan. Konus yasovchisining asos tekisligi bilan tashkil etgan burchak sinusini toping.

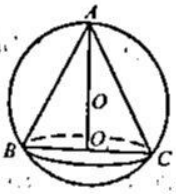
Berilgan:

$R = 3$

$\ell = 4$

$\sin\alpha = ?$

Yechish:



$AO = R,\ AB = AC = \ell;\ BO_1 = O_1C = r$

$\angle ABC = \alpha$

1) ΔAO_1B to'g'ri burchakli

$\sin\alpha=\frac{AO_1}{AB}=\frac{H}{\ell}$

2) ΔABC ga tashqi chizilgan aylana radiusi:

$$R=\frac{\ell\cdot\ell\cdot 2r}{4\cdot\frac{2r\cdot H}{2}}=\frac{\ell^2}{2H}$$

Bundan $H=\frac{\ell^2}{2R}=\frac{4^2}{2\cdot 3}=\frac{16}{2\cdot 3}=\frac{8}{3}$.

3) $\sin\alpha=\frac{8}{3}:4=\frac{8}{3\cdot 4}=\frac{2}{3}$.

Javob: $\frac{2}{3}$.

15. Agar $a<0$ bo'lsa, $\frac{2}{x}<\frac{1}{a}$ tengsizlikni yeching.

Yechish:

$a<0$

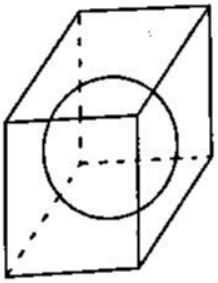
$\frac{2}{x}<\frac{1}{a}$, $\frac{2}{x}-\frac{1}{a}<0$, $\frac{2a-x}{xa}<0, a<0$

bo'lganligi sababli $\frac{x-2a}{x}<0$, $2a<x<0$.

Javob: $2a<x<0$.

16. To'g'ri burchakli parallelepiped 5 radiusli sferaga tashqi chizilgan. Parallelepiped hajmini toping.

Yechish:



$R=5$

$V=?$

Parallelepipedga sfera ichki chizilgan bo'lsa, u holda bu parallelepiped kub bo'ladi.

Bundan

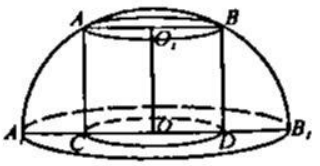
$AB=a=2R$

$V=a^3=(2R)^3=(2\cdot 5)^3=1000$.

Javob: 1000.

17. Yarimsharga silindr shunday ichki chizilganki, silindrning bitta asosi yarimshar asosida yotadi. Agar silindr balandligi yarimshar radiusidan 1,5 marta kichik bo'lsa, silindr hajmining yarimshar hajmiga nisbatini toping.

Yechish:



$OO_1=H$,

$A_1O=OB_1=R$,

$CO=OD=r$,

$R=1{,}5H$.

ΔAOO_1 dan AO_1 ni topamiz.

$AO_1=O_1B=r$

$AO_1^2=AO^2-OO_1^2=R^2-H^2=$

$=\frac{9}{4}H^2-H^2=\frac{5}{4}H^2$

$V_s=\pi r^2H=\frac{5\pi}{4}H^3$

$V_{sh}=\frac{4}{3}\pi R^3=\frac{4}{3}\pi\cdot\left(\frac{3}{2}H\right)^3=\frac{9\pi}{2}H^3$

$\frac{V_{sh}}{2}=\frac{9\pi H^3}{4}$, $\frac{V_s}{V_{sh}}=\frac{5\pi H^3}{4}:\frac{9\pi H^3}{4}=\frac{5}{9}$.

Javob: $\frac{5}{9}$.

18. ABCD $A_1B_1C_1D_1$ kub qirrasi 1 ga teng. AB_1D_1 uchburchak yuzini toping.

Berilgan:

$ABCDA_1B_1C_1D_1$ – kub

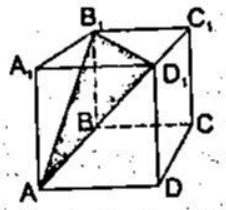
$AA_1=1$

$AB_1=B_1D_1=AD_1=$

$=1\cdot\sqrt{2}=\sqrt{2}$

ΔAB_1D_1 muntazam.

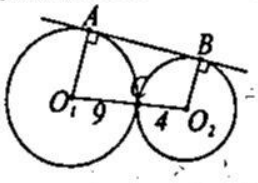
Yechish:



$S_{AB_1D_1}=\frac{a^2\sqrt{3}}{4}=\frac{\left(\sqrt{2}\right)^2\sqrt{3}}{4}==\frac{2\cdot\sqrt{3}}{4}=\frac{\sqrt{3}}{2}$.

Javob: $\frac{\sqrt{3}}{2}$.

19. $O_1C=9$ sm, $CO_2=4$ sm bo'lsa, AB kesma uzunligini toping.

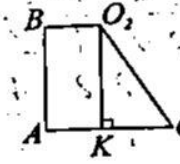


Berilgan:

$O_1C=9$ sm

$CO_2=4$ sm

$AB-?$



Yechish:
O_1A_1 O_2B – urinish nuqtalarga o'tkazilgan radiuslar. Demak, $O_1A \perp AB$ va $O_2B \perp AB$.
ABO_2O_1 – to'g'ri burchakli trapetsiya
$AB = O_2K$
$O_2O_1 = O_1C + O_2C = 9 + 4 = 13$
$O_1K = AO_1 - BO_2 = 9 - 4 = 5$
O_2KO_1 to'g'ri burchakli uchburchakdan Pifagor teoremasiga ko'ra:
$O_2K^2 = O_1O_2^2 - O_1K^2$
$O_2K^2 = 13^2 - 5^2 = 169 - 25 = 144$
$O_2K = 12 \Rightarrow AB = O_2K = 12.$

Javob: 12.

20. Silindr yon sirti 4 ga teng. Silindr balandligi 2 marta kattalashtirilsa, asosining radiusi esa 4 marta kichraytirilsa, ushbu silindr yon sirtini toping.

Berilgan:
$S_{yon} = 4$
$H_1 = 2H$
$R_1 = \frac{R}{4}$
$S_1 = ?$

Yechish:
1) $S_{yon} = 2\pi RH = 4$
2) $S_1 = 2\pi R_1H_1 = 2\pi \cdot \frac{R}{4} \cdot 2H =$
$= 2\pi RH \cdot \frac{1}{2} = 4 \cdot \frac{1}{2} = 2.$

Javob: 2.

21. $3x^2 + 9x - 0{,}25 \geq a$ tengsizlik x ning ixtiyoriy qiymatida o'rinli bo'ladigan a ning eng katta qiymatini toping.

Yechish:
$3x^2 + 9x - 0{,}25 \geq a$ tengsizlik x ning ixtiyoriy qiymatida o'rinli bo'lishi uchun
$3x^2 + 9x - 0{,}25 - a \geq 0$ da, $D < 0$ bo'lishi kerak.
$D = 9^2 - 4 \cdot 3 \cdot (-0{,}25 - a) < 0$
$27 + 1 + 4a < 0,\ 4a < -28,\ a < -7.$

Javob: –8.

22. $y = \log_2(\sin^2 3x + \cos^2 3x)$ funksiyasining eng kichik musbat davrini toping.

Yechish:
$y = \log_2(\sin^2 3x + \cos^2 3x)$
Asosiy trigonometrik ayniyatga asosan
$\sin^2 3x + \cos^2 3x = 1$, bundan
$y = \log_2(\sin^2 3x + \cos^2 3x) = \log_2 1 = 0$
$y = 0$ davriy funksiya emas.

Javob: mavjud emas.

23. To'g'ri javobni ko'rsating. Bu yerda [a] – a sonning butun qismi.

Yechish:
[a] – a sonning butun qismi.
Sonning butun qismi xossasiga asosan
$a\ b \in R$ bo'lganda $[a + b] \geq [a] + [b]$ bo'ladi.

Javob: agar a, b ∈ R bo'lsa, $[a + b] \geq [a] + [b]$.

24. $2x^4 + 7x^3 - 2x^2 - 13x + 6 = 0$ tenglamaning eng kichik ildizini toping.

Yechish:
$2x^4 + 7x^3 - 2x^2 - 13x + 6 = 0$
1) ozod hadi 6 ning bo'luvchilari tenglamaning ildizi bo'ladi.
2) Gorner sxemasidan foydalanamiz.

	2	7	–2	–13	6
–3	2	1	–5	2	0
–2	2	–3	1	0	
1	2	–1	0		
$\frac{1}{2}$	2	0			

3) $2x^4 + 7x^3 - 2x^2 - 13x + 6 =$
$= 2(x + 3)(x + 2)(x - 1)(x - \frac{1}{2}) = 0.$
4) tenglama ildizlari
$x = -3,\ x = -2,\ x = 1,\ x = \frac{1}{2}.$
5) eng kichik ildizi $x = \frac{1}{2}.$

Javob: $\frac{1}{2}.$

25. Agar $\log_3 25 = a$, $\log_{25} 16 = b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalang.

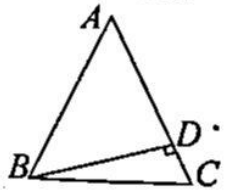
Yechish:
$\log_3 25 = a$, $\log_{25} 16 = b$ bo'lsa, $\log_2 3$ ni a va b orqali ifodalaymiz.
$a \cdot b = \log_3 25 \cdot \log_{25} 16 = \log_3 16 =$
$= \log_3 2^4 = 4\log_3 2.$
$\log_3 2 = \frac{ab}{4},\ \log_2 3 = \frac{4}{ab}.$

Javob: $\frac{4}{ab}.$

26. Asosi a ga, yon tomoni b ga teng bo'lgan teng yonli uchburchakning yon tomoniga tushirilgan balandlik uzunligini toping.

Berilgan:
ΔABC teng yonli.
$AB = AC = b$, $BC = a$,
$AC \perp BD$.
ΔADB va ΔBDC to'g'ri burchakli.

Yechish:



$DC = x$, $AD = b - x$
$b^2 - (b-x)^2 = a^2 - x^2$
$b^2 - a^2 = (b-x)^2 - x^2$
$b^2 - a^2 = b\cdot(b-2x)$

$$2x = b - \frac{b^2 - a^2}{b} = \frac{a^2}{b}, x = \frac{a^2}{2b}$$

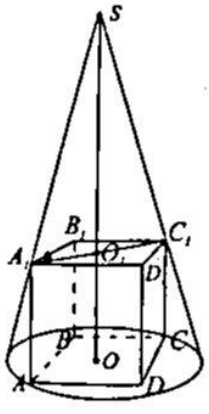
$$BD^2 = a^2 - x^2 = a^2 - \frac{a^4}{4b^2} = \frac{4a^2b^2 - a^4}{4b^2}$$

$$BD = \sqrt{\frac{a^2(4b^2 - a^2)}{4b^2}} = \frac{a}{2b}\sqrt{4b^2 - a^2}.$$

Javob: $\frac{a}{2b}\sqrt{4b^2 - a^2}$.

27. Konus asosining radiusi R va balandligi H. Unga ichki chizilgan kubning qirrasini toping.

Yechish:



$SO = H$, $AB = a$,
$SO_1 = h = H - a$

$$A_1O_1 = r = \frac{d}{2} = \frac{a\sqrt{2}}{2}$$

ΔSO_1A_1 va ΔSOA o'xshash

$$\frac{h}{r} = \frac{H}{R}, \quad \frac{H-a}{\frac{a\sqrt{2}}{2}} = \frac{H}{R}$$

$\sqrt{2}RH - aR\sqrt{2} = Ha$
$a(H + R\sqrt{2}) = \sqrt{2}RH$

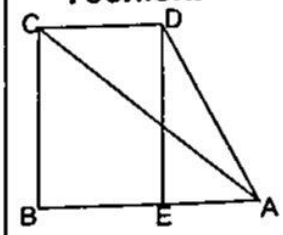
$$a = \frac{\sqrt{2}RH}{H + R\sqrt{2}}.$$

Javob: $\frac{\sqrt{2}RH}{H + R\sqrt{2}}$.

28. ABCD trapetsiyada $BC \perp AB$, $DC \| AB$, $AB = 6$, $AD = 5$, $CD = 3$ bo'lsa, $|AC|$ diagonal uzunligini toping.

Berilgan:
$ABCD$ – trapetsiya
$BC \perp AB$
$DC \| AB$
$AB = 6$
$AD = 5$
$CD = 3$
$AC = ?$

Yechish:



$DE \perp AB$, $DE^2 = AD^2 - EA^2$
$EA = AB - CD = 6 - 3 = 3$
$DE = \sqrt{5^2 - 3^2} = \sqrt{16} = 4$
ΔABC to'g'ri burchakli.
$AC^2 = AB^2 + BC^2 = AB^2 + DE^2 = 6^2 + 4^2 = 52.$
$AC = \sqrt{52} = 2\sqrt{13}$.

Javob: $2\sqrt{13}$.

29. Silindr hajmi 16 ga teng. Silindr balandligi 3 marta kichraytirilsa va asosining radiusi 3 marta kattalashtirilsa, ushbu silindr hajmini toping.

Yechish:
$V = 16$. $V = \pi R^2 H = 16$.

$$H_1 = \frac{H}{3} \qquad R_1 = 3R$$

$$V_1 = \pi R_1^2 H_1 = \pi\cdot(3R)^2\cdot\frac{H}{3} = \pi R^2 H\cdot\frac{9}{3} =$$

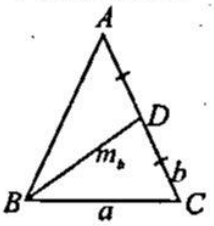
$= 16\cdot 3 = 48.$
$V_1 = 48.$

Javob: 48.

30. Asosi a ga, yon tomoni b ga teng bo'lgan teng yonli uchburchakning yon tomoniga tushirilgan mediana uzunligini toping.

Berilgan:
ABC – teng yonli uchburchak
$AB = AC = b$
$BC = b$
$m_b = ?$

Yechish:



BD = m_b yon tomonga tushirilgan mediana.
AD = DC = b/2
Medianani topish formulasiga asosan

$$m_b = \frac{1}{2}\sqrt{2a^2 + 2c^2 - b^2}.$$

b = c

$$m_b = \frac{1}{2}\sqrt{2a^2 + 2b^2 - b^2} = \frac{1}{2}\sqrt{2a^2 + b^2}$$

Javob: $\frac{1}{2}\sqrt{2a^2 + b^2}$.

31. Rost mulohazalarga mos sonlar yig'indisini Rim sanoq sistemasida aniqlang.
CIX = "Soat millarining harakati uzlukli axborotga misol bo'ladi"
XCVII = "Insonga uzluksiz ta'sir etib turuvchi axborotlar diskret axborotlar deb ataladi"
XLIX = "Axborot xususiyatlariga quyidagilar kiradi: qimmatlilik, ishonchlilik, to'liqlik"

Yechish:
Rim raqamlarini 10-lik sanoq sistemasiga o'tkazib, rost mulohazalarni aniqlaymiz.
CIX = 109 = "Soat millarining harakati uzlukli axborotga misol bo'ladi" – rost
XCVII = 97 = "Insonga uzluksiz ta'sir etib turuvchi axborotlar diskret axborotlar deb ataladi" – yolg'on
XLIX = 49 = "Axborot xususiyatlariga quyidagilar kiradi: qimmatlilik, ishonchlilik, to'liqlik" – rost
CIX + XLIX = 109 + 49 = 158
A) CCVI = 207
B) CCLV = 255
C) CLVIII = 158
D) CXLVI = 146

Javob: CLVIII.

32. Tizimli dasturiy ta'minot tarkibi:

Yechish:
Tizimli dasturiy ta'minot tarkibiga operatsion tizim, antiviruslar, arxivatorlar, tarmoq dasturlar, tashhis dasturlari kiradi.

Javob: operatsion tizim, tarmoq operatsion tizim, tashhis dasturlari, antivirus dasturlar, arxivatorlar, tarmoq dasturlari.

33. A="IO.SYS – ma'lumotlarni kiritish-chiqarish sistemasining kengaytirish moduli."
B="Free and Open Source Software – mutlaqo bepul, birlamchi kodi yopiq dasturiy ta'minot."
C="FoxPro – ma'lumotlar omborini boshqarish tizimidir." Shu mulohazalar asosida quyidagi mantiqiy ifodaning natijasini toping:
(A or B) and (not B or C)

Yechish:
Mulohazalarni tahlil qilamiz:
A="IO.SYS – ma'lumotlarni kiritish-chiqarish sistemasini kengaytirish moduli". – rost (1)
B="Free and Open Source Software – mutlaqo bepul, birlamchi kodi yopiq dasturiy ta'minot" – yolg'on. (0)
C="FoxPro – ma'lumotlar omborini boshqarish tizimidir". – rost (1).
(A or B) and (not B or C)
Qiymatlarini qo'yib chiqsak

(1 or 0) and (not 0 or 1)
1 and 1 = l. (rost)

Javob: rost.

34. Qarang: 1-variant 34-savol (11-bet).

35. Excel 2003 dasturida necha turdagi diagramma tuzish mumkin?

Yechish:

Excel 2003 dasturida jami 14 ta turdagi diagramma tuzish mumkin bo'lib, ular:

Tekislida (на плоскости):

1) гистограмма (gistogramma)
2) графический (grafikli)
3) круговая (aylanali)
4) линейчатая (chiziqli)
5) лепестковая
6) точечная
7) смешанная
8) кольцевая
9) с областями

Fazoda (в пространстве):

1) с областями
2) поверхность
3) круговая
4) график
5) гистограмма.

Javob: 14.

36. Internet qanday tarmoq turiga mansub?

Yechish:

Tarmoqlarni kompyuterlami qamrab olishi bo'yicha o'sish tartibida eslaymiz: lokal, korporativ, mintaqaviy, global. Internet deyarli butun jahonni qamrab olgani uchun global tarmoqlar turkumiga mansub.

Javob: global.