



MATEMATIKA MOCK

[1,3 ball]

1. $a - 4$ ga bo'linmaydiga juft son. a^2 ni 32 ga bo'lgandagi qoldiqni toping.

- A) 4
- B) 4 yoki 12
- C) 4 yoki 28
- D) 12

[2,2 ball]

2. $\frac{2x-1}{3} = \frac{3y-1}{4} = \frac{4z-6}{6}$ va $4x - 3y + 2z = 29$ orasidagi munosabat mavjud bo'lsa, x ni toping.

- A) 8
- B) 10
- C) 11
- D) 12

[2,2 ball]

3. $x^3yz^2 < 0, xz^3 < 0, x^5y^3z > 0$ bunga ko'ra x, y, z haqiqiy sonlar bo'lsa, to'g'risini toping?

- A) $-, -, +$
- B) $-, +, +$
- C) $+, +, -$
- D) $+, -, -$



[2,2 ball]

4. $(1 + \sqrt{2} + \sqrt{3})(1 + \sqrt{2} - \sqrt{3}) - \sqrt{8}$ qiymatini toping.

- A) -3
- B) -4
- C) 0
- D) -2

[1,3 ball]

5. Mashina 60 km/soat tezlik bilan 3,6 soatda butun yo'lni bosib o'tsa, mashina qanday tezlik (km/soat) bilan harakatlansa, u butun yo'lni 2,4 soatda bosib o'tadi?

- A) 40
- B) 80
- C) 90
- D) 120

[1,3 ball]

6. Bir bog'da joylashgan to'rtburchak shaklidagi hovuzni quyidagi sharoitda suv bilan to'ldirish kerak. Birinchi quvur hovuzni 8 soatda to'liq to'ldiradi, ikkinchi quvur esa hovuzni 6 soatda to'ldiradi. Hovuzda suvni bo'shatuvchi drenaj quvuri mavjud bo'lib, u ochiq bo'lsa, to'liq to'lgan hovuzni 12 soatda bo'shatadi. Dastlab hovuz bo'sh. Soat 08:00 da birinchi va ikkinchi quvurlar birga ochildi. Soat 10:00 da drenaj quvuri tasodifan ochilib qoldi va keyin uni 2 soat ichida (ya'ni 12:00 da) yopishdi.

- A) 3
- B) 4,5
- C) 4
- D) 5



[2,2 ball]

7. $\frac{x^2+ax+b}{x^2+11x+28} \cdot \frac{x^2+4x-21}{x^2-9} = \frac{x+2}{x+3}$ bunga ko'ra, $a + b$ ni toping.

- A) 14
- B) 15
- C) 16
- D) 17

[2,2 ball]

8. a_n arifmetik progressiya umumiy hadi. Bunga ko'ra to'qqizinchi hadi beshinchi hadidan ikki marrrta katta, oltinchi hadi ikkilangani o'n uchinchi hadidan 5 ga kam bo'lsa, arifmetik progressiyaning dastlabki yigirmatta hadi yig'indisini toping.

- A) 159
- B) 156
- C) 157
- D) 161

[2,2 ball]

9. Bir shaharda yangi ko'p qavatli uy qurilmoqda. Har bir keyingi qavatga solinadigan oynalarning soni geometrik progressiya bo'yicha oshib boradi. 1-qavatga 4 ta oyna o'rnatilgan. Har bir keyingi qavatdagi oynalar soni oldingi qavatdagiga nisbatan 2 baravar ko'p. Agar oxirgi, ya'ni n -qavatgacha bo'lgan jami oynalar soni 1020 taga teng bo'lsa, nechta qavat qurilgan.

- A) 10
- B) 12
- C) 8
- D) 6



[1,3 ball]

10. $\begin{cases} ax + 2x + 12y = 30 \\ 6x - (b + 1)y - 15 = 0 \end{cases}$ tenglamalar sistemasi cheksiz ko'p yechimga ega bo'lsa, $a \cdot b$ ni

toping.

- A) -70
- B) -28
- C) -65
- D) -55

[2,2 ball]

11. a ning nechta qiymatida $||x + 2| - 2| = a$ tenglama 3 ta yechimga ega bo'ladi.

- A) 2
- B) 3
- C) 1
- D) 0

[1,3 ball]

12. $y = 3x^2 - 6x + 7$ kvadrat funksiyaning absissa o'qiga nisbatan simmetrik funksiya
- aniqlang.

- A) $y = -3x^2 + 6x - 7$
- B) $y = 3x^2 - 6x + 7$
- C) $y = -3x^2 - 6x - 7$
- D) $y = 3x^2 + 6x + 7$



[2,2 ball]

13. Tengsizlikni yeching

$$\sqrt[4]{2x^2 + 7} - \sqrt{x + 2} > 0$$

- A) $(-3; -1)$
- B) $[-2; 1) \cup (3; \infty)$
- C) $(1; 3)$
- D) $[2; 3)$

[2,2 ball]

14. Tengsizlikni yeching:

$$\frac{(x^2 - 4)(x^2 - 2x + 1)}{x + 3} \geq 0$$

- A) $(-\infty; -3) \cup [-2; 2]$
- B) $(-3; -2) \cup [2; \infty)$
- C) $(-3; -2) \cup (2; \infty) \cup \{1\}$
- D) $(-3; -2] \cup [2; \infty) \cup \{1\}$

[2,2 ball]

15. $(x - 1)^{x-1} + (x - 1)^{x-1} = 8^3$ tenglamani $(x - 7)^{x-7}$ dagi qiymatini toping.

- A) 2
- B) -4
- C) $\frac{1}{4}$
- D) 4



[1,3 ball]

16. $f(x) = 3 - 2x = \frac{g(f(x))+1}{x-2}$ funksiyaning $g(5)$ ni toping.

- A) -16
- B) -15
- C) -13
- D) -14

[2,2 ball]

17. Integralni hisoblang:

$$\int_0^{\frac{\pi}{4}} \frac{tg^2 x}{\cos^4 x} dx$$

- A) $\frac{8}{15}$
- B) $\frac{6}{5}$
- C) $\frac{3}{4}$
- D) $\frac{1}{2}$

[1,3 ball]

18. $ctg 12^\circ = \frac{1}{m}$ bunga ko'ra, $\frac{\sin 6^\circ + 5 \sin 24^\circ + \sin 42^\circ}{\cos 6^\circ + 5 \cos 24^\circ + \cos 42^\circ}$ ifodani m orqali ifodalang.

- A) $2m$
- B) $\frac{2m}{m-1}$
- C) $\frac{m^2-1}{2m}$
- D) $\frac{2m}{1-m^2}$



[2,2 ball]

19. $P(x) = 16x^4 - 8x^2 + 10x + 2$ ko'phadni $2x - 1$ ga bo'lgandagi qoldiqni toping.

- A) 3
- B) 4
- C) 5
- D) 6

[1,3 ball]

20. $f(x) = \frac{x-3}{(1-x^2)(x^2-4)}$ funksiyaning y asimtotasi nechta qiymati mavjud.

- A) 1
- B) 2
- C) 3
- D) 4

[2,2 ball]

21. Tomoni 30, 30, 48 bo'lgan uchburchakning bissektrisalari va medianalari kesishgan nuqtalar orasidagi masofani toping.

- A) 7
- B) 14
- C) 2
- D) 5



[2,2 ball]

22. Uchburchakning uchlari to'g'ri burchakli dekart koordinatalar sistemasida quyidagicha

berilgan: $A(0;0)$, $B(-\frac{1}{2}; 6)$, $C(-1;0)$. Uchburchak yuzini toping.

A) $2\sqrt{2}$

B) $2\sqrt{3}$

C) 2

D) 3

[2,2 ball]

23. Hisoblang:

$$4^{\lg 2} \cdot 4^{\lg \frac{3}{2}} \cdot 4^{\lg \frac{4}{3}} \cdot \dots \cdot 4^{\lg \frac{1000}{999}}$$

A) 72

B) 65

C) 64

D) 80

[1,3 ball]

24. $x^2 - (a^2 - 25)x + a - 4 = 0$ tenglama haqiqiy va o'zaro qarama-qarshi ildizlarga ega

bo'ladigan a larni toping.

A) 5

B) -5,5

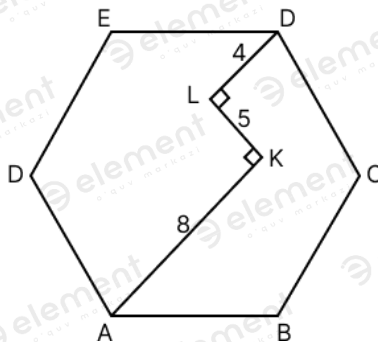
C) 4

D) -5



[1,3 ball]

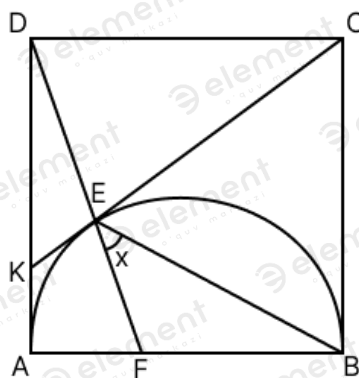
25. $ABCDEF$ muntazam oltiburchak tasvirlangan. Rasmdagi shartlardan foydalanib $ABCDEF$ ning perimetrini toping.



- A) 26
- B) 30
- C) 36
- D) 39

[2,2 ball]

26. Chizmada $ABCD$ kvadrat va yarim aylanalar tasvirlangan. Shartlardan foydalanib $\angle BEF = x$ ni toping.

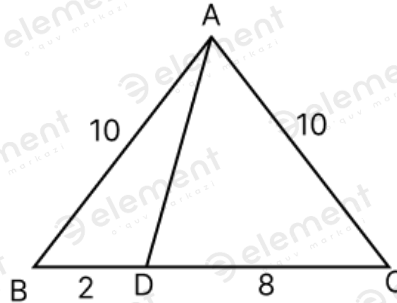


- A) 15
- B) 30
- C) 45
- D) 60



[2,2 ball]

27. ABC muntazam uchburchak. Bunda $BD = 2, DC = 8$ bo'lsa, $\overrightarrow{BA} \cdot (\overrightarrow{DB} + \overrightarrow{AC})$



A) -60

B) -50

C) -40

D) 50

[2,2 ball]

28. $ABCD$ rombda $DE \perp BC$, $BE = 8, DF = 15$ va $AF = 25$ dir. Bunga ko'ra, FE ni toping.

A) 1

B) $1,5$

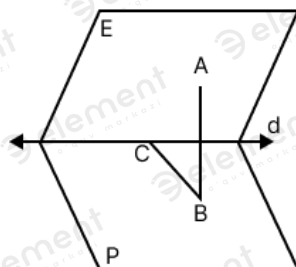
C) 2

D) $2,5$



[2,2 ball]

29. E va P tekisliklari orasidagi burchak 60° dir. $AB = \sqrt{6}$, $BC \perp d$, $CB = \sqrt{2}$ bo'lsa, $\angle ABC$ ni toping.



- A) 45°
B) 60°
C) 90°
D) 30°

[2,2 ball]

30. $B \subset A$ va $S(A' \cup B) = 18$, $S(B') - S(A) = 14$ bunga ko'ra, $S(B)$ ni toping.

- A) 16
B) 4
C) 2
D) 12

[2,2 ball]

31. 34005 sonning raqamlari joylarini almashtirib jami nechta har xil 5 xonali son hosil qilish mumkin?

- A) 48
B) 36
C) 60
D) 96



[2,2 ball]

32. Shaxmat doskasi $8 \cdot 8 = 64$ katakdan iborat. Oq kataklar va qora kataklar teng sonli bo'lsa, nuqtaning oq katakka tushish ehtimolini toping.

- A) 0,125
- B) 0,275
- C) 0,128
- D) 0,5

Topshiriqlar (33-35) va javob variant (A-F) larini o'zaro moslashtiring.	
Kovak shar devorining hajmi 252π ga, devorning qalinligi 3 cm ga teng.	
33.	[2,2 ball]
Tashqi sharning radiusini toping.	
34.	[2,2 ball]
Ichki shar radiusini toping.	
35.	[2,2 ball]
Sharlar hajmlri nisbatini toping.	

- A) 10
- B) 3
- C) 8
- D) 9
- E) 6
- F) 4

36. $\sqrt[3]{9 - \sqrt{x + 1}} + \sqrt[3]{7 + \sqrt{x + 1}} = 4$ tenglama bo'lsa,

1,5 ball]

a) tenglama nechta yechimga ega.

Javob: a) _____

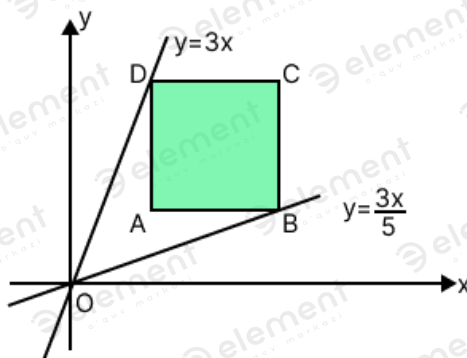
1,7 ball]

b) tenglama ildizlari ko'paytmasini toping.

Javob: b) _____



37. Shaklda $y = 3x$ va $y = \frac{3x}{5}$ to'g'ri chiziqlar orasida $ABCD$ kvadratning og'irlik markazi absissasi 7 va $AB \parallel Ox$ bo'lsa,



[1,5 ball]

a) $ABCD$ kvadratning yuzini toping.

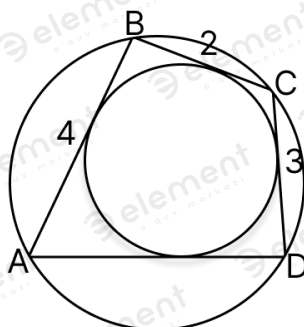
Javob: a) _____

[1,7 ball]

b) B va A nuqtalari koordinatalari yig'indisini toping?

Javob: b) _____

38. Chizmadagi shartlardan foydalanib soha yuzini toping.



[1,5 ball]

a) to'rtburchakni yuzini toping?

Javob: a) _____

[1,7 ball]

b) to'rtburchakka ichki chizilgan yuzini toping?

Javob: b) _____



39. $tg \frac{3x}{2} - tg \frac{x}{2} = 2 \sin x$ tenglama bo'lsa,

[1,5 ball]

a) tenglamaning eng katta manfiy ychimini toping.

Javob: a) _____

[1,7 ball]

b) tenglamaning $(0; \pi]$ oralig'ida yechimlari nechta.

Javob: b) _____

40. Sharga konus ichki chizilgan. Konus yon sirti $32\sqrt{2 + \sqrt{3}}\pi$ ga teng. Konus yasovchisi va asos tekisligi orasidagi burchak 75° ga teng bo'lsa,

[1,5 ball]

a) Konus asosining radiusini toping.

b) Javob: a) _____

[1,7 ball]

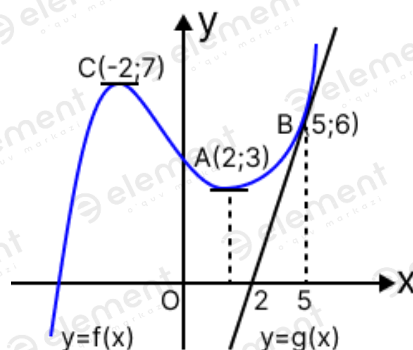
b) Yasovchini konus radiusiga nisbati.

Javob: b) _____



41. Shaklda $y = f(x)$ egri chig'i va $x = 5$ nuqtada urinuvchi $y = g(x)$ to'g'ri chiziq tasvirlangan.

Bunga ko'ra, $\frac{f'(-2)+f(2)}{g'(10)+g'(5)}$ ni toping



[1,5 ball]

a) $\frac{f'(-2)+f(2)}{g'(10)+g'(5)}$ ni toping.

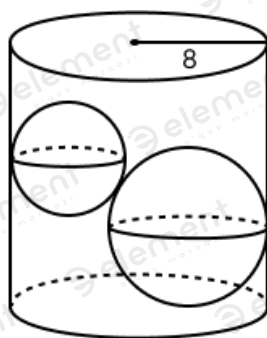
Javob: a) _____

[1,7 ball]

b) $f(x)$ funksiya B nuqtada urinuvchi urinma burchak koefitsiyentini toping.

Javob: b) _____

42. Silindr radiusi 8 cm va radiuslari 4 cm , 6 cm sharlar ichiga tashlandi.



[1,5 ball]

a) yuqoridagi ma'lumotlarga ko'ra, bu ikkita sharni to'liq qoplaydigan suv miqdorining balandligi eng kamida necha cm ga teng.

Javob: a) _____

[1,7 ball]

b) agar sharlar olib tashlansa qancha suv qoladi ($\pi - 3$ deb olinsin).

Javob: b) _____



43. $f(x) + f(x - 1) = \frac{2x^2 - 4x + 1}{x^2 - x}$ bo'lsa,

[1,5 ball]

a) $f(2)$ ni toping?

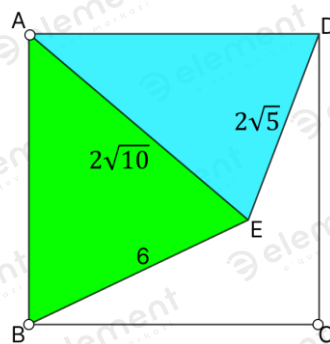
Javob: a) _____

[1,7 ball]

b) $f(x)$ ni toping?

Javob: b) _____

44. Shaklda $ABCD$ kvadrat bo'lsa,



[1,5 ball]

a) $ABCD$ kvadrat yuzini toping.

Javob: a) _____

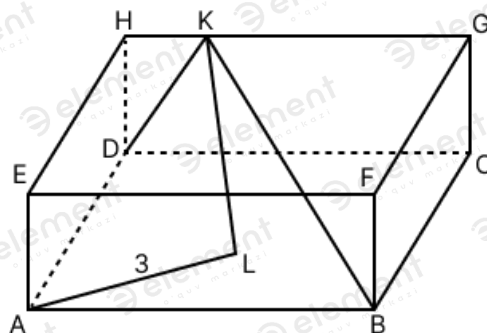
[1,7 ball]

b) $ABCD$ kvadratning perimetrini toping.

Javob: b) _____



45. Tasvirda parallelopiped tasvirlangan. Unga ko'ra L nuqta $ADBC$ to'g'ri to'rtburchak og'irlik markazi. $AL = 3, KL = 4$ bo'lsa,



[1,5 ball]

a) $KD^2 + KB^2$ yig'indisini toping.

Javob: a) _____

[1,7 ball]

b) agar diagonallari orasidagi burchak 60° balandligi 4 bo'lsa, to'la sirti yuzini toping.

Javob: b) _____



JAVOBI

Nº	✓	Nº	✓	Nº	✓
1	A	16	A	31	C
2	A	17	A	32	D
3	D	18	D	33	E
4	C	19	D	34	B
5	C	20	D	35	C
6	C	21	C		
7	A	22	D		
8	A	23	C		
9	C	24	D		
10	A	25	D		
11	C	26	C		
12	A	27	A		
13	B	28	C		
14	D	29	C		
15	C	30	C		

36	a	1
	b	0
37	a	36
	b	32
38	a	$2\sqrt{30}$
	b	$\frac{2\sqrt{30}}{7}$
39	a	$-\arctg \frac{\sqrt{2}}{2}$
	b	6
40	a	4
	b	$2\sqrt{2+\sqrt{3}}$
41	a	$\frac{3}{4}$
	b	2
42	a	18
	b	1,336
43	a	$\frac{1}{2}$
	b	$\frac{x-1}{x}$
44	a	52
	b	$8\sqrt{13}$
45	a	50
	b	$36\sqrt{3} + 36$