



MATEMATIKA MOCK

[1,3 ball]

1. $EKUK(36; 45; x) = 1260$ va $EKUB(36; 45; x) = 9$ bo'lsa, x ning olishi mumkin bo'lgan eng kichik qiymatini toping.

A) 27

B) 36

C) 48

D) 63

[2,2 ball]

2. $(3x - 1)^2 - 9(x + 1)^2 + 6\left(x + 2\frac{1}{6}\right)$ ifodaning $x = \frac{1}{6}$ dagi qiymatini toping.

A) 13

B) 3

C) -13

D) 2

[2,2 ball]

3. Avtomobil 30 m/s tezlik bilan harakatlanib kelmoqda. Haydovchi tormozni bosib, avtomobilni 5 m/s² doimiy sekinlanish bilan to'xtatadi. Avtomobil to'xtaguncha qancha masofa bosib o'tiladi?

A) 88

B) 70

C) 76

D) 90



[2,2 ball]

4. Hisoblang:

$$\sqrt{8\sqrt{17+6\sqrt{3-2\sqrt{2}}}-6}}$$

- A) $3 - \sqrt{2}$
- B) $3 + \sqrt{2}$
- C) $4 - \sqrt{2}$
- D) $4 + \sqrt{2}$

[1,3 ball]

5. Hisoblang:

$$(-9)^3 : (-9)^2 + (-10)^3 : (-10) - (-2)^8 : (-2)^7$$

- A) 93
- B) -89
- C) -197
- D) 89

[1,3 ball]

6. Bekzod 150 000 so'mga bir juft poyabzal sotib oldi. Keyin u ushbu poyabzalga 40% foyda qo'shib, uni qayta sotdi. Bir muddat o'tgach, Bekzod ushbu poyabzalga 25% chegirma qildi. Poyabzalning yangi narxi qancha bo'ladi?

- A) 157800
- B) 157600
- C) 157500
- D) 157350



[2,2 ball]

7. $3^{12} - 343^2$ ayirma quyidagilardan qaysi biriga bo'linadi?

- A) 24
- B) 27
- C) 193
- D) 68

[2,2 ball]

8. $a_1 = 2, a_2 = 3$ va $a_n = a_{n-1} + 2a_{n-2}$ bo'lsa, $a_{2025} + a_{2024}$ yig'indining oxirgi ikkita raqamini toping.

- A) 20
- B) 40
- C) 80
- D) 60

[2,2 ball]

9. Cheksiz kamayuvchi geometric progressiyaning ikkinchi hadi 4 ga, hadlari kvadratlarining yig'indisini hadlari yig'indisiga nisbati esa $\frac{16}{3}$ ga teng ekanligi ma'lum. Shu progressiyaning ettita hadining yig'indisini toping.

- A) $18\frac{7}{8}$
- B) $21\frac{3}{8}$
- C) $15\frac{7}{8}$
- D) $16\frac{3}{8}$



[1,3 ball]

10.
$$\begin{cases} \log_6 3x + \log_6 \frac{8}{y} = 2 \\ 3x - 2y = 5 \end{cases}$$
 tenglamalar sistemasidan $x + y$ ni toping.

- A) 3
- B) 4
- C) 5
- D) 7

[2,2 ball]

11. Agar $\alpha = \frac{2024\pi}{3}$ bo'lsa, $(\cos \alpha; \sin \alpha)$ nuqta koordinatalar tekisligining qaysi choragida yotadi?

- A) I
- B) II
- C) III
- D) IV

[1,3 ball]

12.
$$\frac{1}{x} + \frac{1}{\sqrt{1-x^2}} = \frac{35}{12}$$
 tenglamaning ildizlari sonini toping.

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

[2,2 ball]

13.
$$\sqrt{x^2 - 13x + 12} \leq 5 - x$$
 tengsizlikning nechta butun yechimi bor?

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



[2,2 ball]

14. Tengsizlikni yeching:

$$\left(\frac{2}{\sqrt{10}-1}\right)^{9x^2-(x-2)^2} > 1$$

A) $\left(-\infty; -\frac{1}{2}\right) \cup \left(\frac{2}{3}; \infty\right)$

B) $\left(-\infty; -1\right) \cup \left(\frac{1}{2}; \infty\right)$

C) $\left(-\frac{1}{2}; \frac{2}{3}\right)$

D) $\left(-1; \frac{1}{2}\right)$

[2,2 ball]

15. $\sqrt{1-x^2} = |x-a|$ tenglama yagona yechimga ega bo'ladigan a ning nechta qiymati mavjud.

A) 1

B) 3

C) 2

D) 0

[1,3 ball]

16. Agar $a = \frac{tg\frac{7\pi}{24}-tg\frac{\pi}{24}}{1-tg\frac{7\pi}{24}\cdot tg\frac{\pi}{24}}$ va $b = \frac{tg\frac{7\pi}{24}+tg\frac{\pi}{24}}{1+tg\frac{7\pi}{24}\cdot tg\frac{\pi}{24}}$ bo'lsa, $\sqrt{3}ab - 2$ ni hisoblang.

A) $3\sqrt{3} + 2$

B) $3\sqrt{3} - 2$

C) 5

D) 1



[2,2 ball]

17. Integralni hisoblang:

$$\int_{-2}^1 |x^2 - 1| \cdot x \, dx$$

A) $-\frac{9}{4}$

B) $\frac{1}{2}$

C) $\frac{5}{2}$

D) 3

[1,3 ball]

18. $f(x) = \frac{1}{3}x^3 - x^2 - x + 1$ funksiyaga $A(a; b)$ nuqtadan o'tkazilgan urinma $y = -2x - 1$ to'g'ri chiziqqa parallel bo'lsa, $a + b$ ning qiymatini toping.

A) $\frac{1}{3}$

B) $\frac{1}{4}$

C) $\frac{1}{8}$

D) 1

[2,2 ball]

19. $f(2x - 3) = \frac{x+3}{x-2}$ bo'lsa, $f^{-1}(f(5))$ ni toping.

A) 4

B) 3,5

C) 5

D) 3,25

[1,3 ball]

20. $y = |x|$ funksiya grafigi va $x^2 + y^2 = 36$ tenglama bilan berilgan aylananing kichik yoy bilan chegaralangan shaklning yuzini toping.

A) 8π

B) 9π

C) $8,5\pi$

D) 7π



[2,2 ball]

21. ABC to'g'ri burchakli uchburchakning A to'g'ri burchagi uchidan gipotenuzaga AH balandlik tushurilgan. AHB va AHC uchburchaklarga ichki chizilgan aylanalarning radiuslari mos ravishda 3 va 4 ga teng bo'lsa, AH ni uzunligini toping.

- A) 3,6
- B) 7,2
- C) 12
- D) 5

[2,2 ball]

22. $0,125 \cdot 4^{2x-3} = \left(\frac{0,25}{\sqrt{2}}\right)^{-x}$ tenglamani yeching.

- A) 9
- B) 6
- C) 8
- D) 5

[2,2 ball]

23. Hisoblang:

$$\frac{\log_a ab \cdot \log_b ab}{\log_a b + \log_b a + 2} - \log_b b^2$$

- A) $\log_a b$
- B) $\log_b a$
- C) 1
- D) -1

[1,3 ball]

24. Tengsizlikni yeching:

$$(x^2 + 3x + 3)(x^2 + 3x + 1) > 35$$

- A) $(-1; 4)$
- B) $(-4; 1)$
- C) $(-\infty; -1) \cup (4; \infty)$
- D) $(-\infty; -4) \cup (1; \infty)$



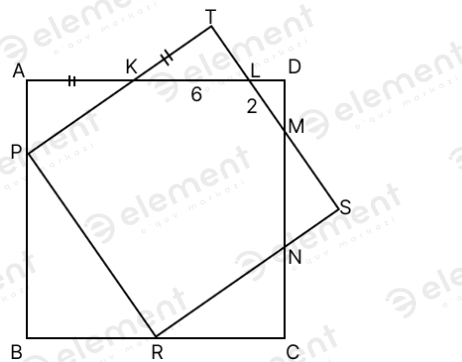
[1,3 ball]

25. Agar ABCDEF muntazam oltiburchakning tomoni 16 ga va G nuqta EF tomonning o'rtasi bo'lsa, BCG uchburchakning yuzini toping.

- A) $96\sqrt{3}$
- B) $128\sqrt{3}$
- C) $192\sqrt{3}$
- D) $144\sqrt{3}$

[2,2 ball]

26. Chizmada kvadratlar tasvirlangan. Bunga ko'ra, $AK = KT$, $KL = 6$, $LM = 2$ bo'lsa, $PRST$ soha yuzini toping.

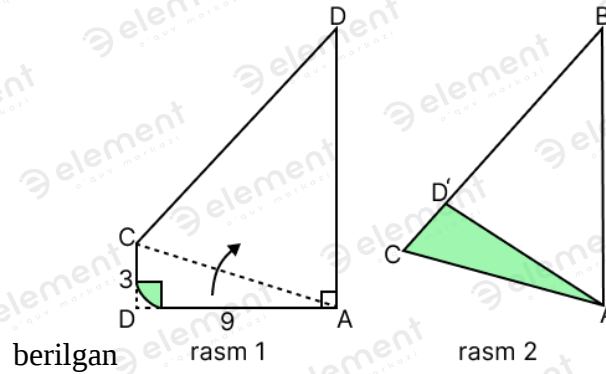


- A) $21\sqrt{3}$
- B) 56
- C) $56 + 24\sqrt{5}$
- D) $73 + 16\sqrt{7}$



[2,2 ball]

27. 1-rasmda $ABCD$ to'g'ri burchakli trapetsiyaning AC diagonalni 2-rasmdagi kabi bukish to'g'ri chizig'i desak D' nuqta bilan BC tomonga buklandi. Bunga $AD = 9$, $DC=3$ bo'lsa, S_{ABCD} ni toping.



- A) 75
B) 78
C) 81
D) 84

[2,2 ball]

28. $ABCD$ parallelogramning A burchagi 30° ga teng. A burchakning bissektrisasi BC tomonni E nuqtada kesib o'tadi. Agar $BE=4$, $EC=2$ bo'lsa, parallelogramning yuzini toping.

- A) 9
B) 10
C) 11
D) 12

[2,2 ball]

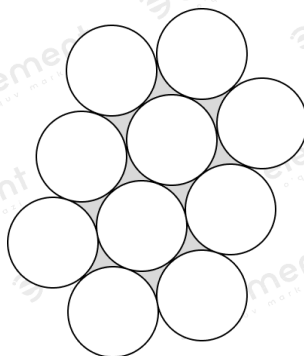
29. ABC uchburchakka aylana ichki chizilgan. Agar $AB=14$, $BC=13$ va $AC=15$ bo'lsa, aylana markazi O nuqtadan A nuqtagacha bo'lgan masofani aniqlang.

- A) $\sqrt{84}$
B) $\sqrt{52}$
C) $\sqrt{65}$
D) $\sqrt{80}$



[2,2 ball]

30. Shaklda radiusi 2 ga teng bo'lgan aylanalar orasidagi soha yuzini toping?



- A) $24\sqrt{3} - 6\pi$
- B) $40\sqrt{3} - 20\pi$
- C) $20\sqrt{3} - 8\pi$
- D) $20\sqrt{3} - 100\pi$

[2,2 ball]

31. Turli 2 ta matematika, 2 ta fizika va 2 ta bialogiya kitobi shkafning bir tokchasiga qo'yilmoqda.
Bialogiya kitoblarining yonmayon kelish ehtimoli qancha.

- A) $\frac{1}{3}$
- B) $\frac{2}{3}$
- C) $\frac{5}{12}$
- D) $\frac{11}{24}$

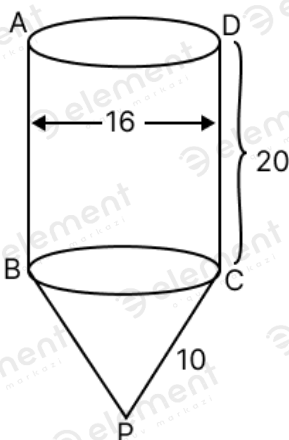
[2,2 ball]

32. $\{1; 2; 3; \dots, 11; 12; 13\}$ to'plamning 3 ta elementdan iborat nechta qism to'plami mavjud bunda bu qism to'plamdagi elementlar yig'indisi 3 ga bo'linadi.

- A) 90
- B) 72
- C) 98
- D) 88


Topshiriqlar (33-35) va javob variant (A-F) larini o'zaro moslashtiring.

Chizmadan shartlaridan foydalanib



33.

[2,2 ball]

Jisimning hajmini toping ($\pi = 3$ deb ifodalang).

34.

[2,2 ball]

To'la sirtini toping ($\pi = 3$ deb ifodalang).

35.

[2,2 ball]

Rasmdagi jismdan ichidan eng katta hajmli silindr yo'nib olingan bo'lsa, hosil qilingan silindr radiusini toping.

A) 4224

B) 3624

C) 1392

D) 1248

E) $\frac{16}{3}$

F) $\frac{8}{3}$

36. $x^4 - 2x^2 + 2 = \sqrt{-x^2 - 2x}$ tenglama bo'lsa,

1,5 ball]

a) tenglama nechta yechimga ega.

Javob: a) _____

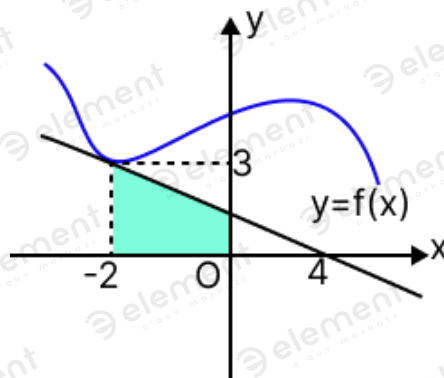
1,7 ball]

b) tenglama ildizlari ko'paytmasini toping.

Javob: b) _____



37. Shaklda $g(x)$ to'g'ri chiziq $f(x)$ funksiyaga $x_0 = -2$ urinsa.



[1,5 ball]

a) $h(x) = x \cdot f(x)$ shartni bajarsa $h'(-2)$ ni toping.

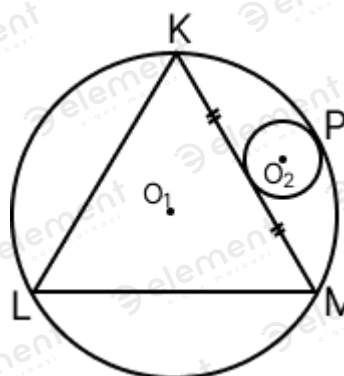
Javob: a) _____

[1,7 ball]

b) bo'yalgan soha yuzini toping?

Javob: b) _____

38. O_2 markazli aylana KLM muntazam uchburchak tomoniga va uchburchakka tashqi chizilgan O_1 markazli aylanaga urinadi. Bunga ko'ra, O_2 markazli aylana radiusi 3 ga teng bo'lsa,



[1,5 ball]

a) O_1 markazli aylana radiusini toping?

Javob: a) _____

[1,7 ball]

b) KLM uchburchak yuzini toping?

Javob: b) _____



39. $\sin^6 2x + \cos^6 2x = \frac{3}{2}(\sin^4 2x + \cos^4 2x) + \frac{1}{2}(\sin x + \cos x)$ tenglama bo'lsa,

[1,5 ball]

a) tenglamaning eng katta manfiy ychimini toping.

Javob: a) _____

[1,7 ball]

b) tenglamaning $(-\pi; 2\pi]$ oralig'ida yechimlari yg'indisini toping.

Javob: b) _____

40. $ABCD$ parallelogramning BC tomoni davomida K nuqta olindi. Undan AK to'g'ri chiziq DC tomonni E nuqtada BD va AK to'g'ri chiziq F nuqtada kesishdi. Bunga ko'ra, $EK = 5$, $3DE = 2AB$ ga teng bo'lsa,

[1,5 ball]

a) AF uzunligini toping?

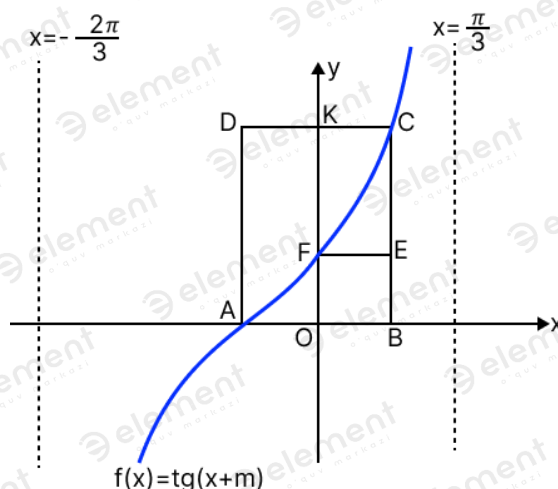
b) Javob: a) _____

[1,7 ball]

b) AK ni toping.

Javob: b) _____

41. $y = \operatorname{tg}(x + m)$ funksiyaning grafigi tasvirlangan. Bunga ko'ra, $S_{AOKD} = 3S_{OBEF}$, $AO = OB$ dir.



[1,5 ball]

a) m ni toping.

Javob: a) _____

[1,7 ball]

b) S_{FECK} ni toping.

Javob: b) _____

42. Shaklda kesilgan silindr radiusi 2, $BC = 12$, $AD = 9$ bo'lsa,



[1,5 ball]

a) jismning hajmini toping?

Javob: a) _____

[1,7 ball]

b) jismning yo'n sirti yuzini toping.

Javob: b) _____



43. $f(x) + f\left(\frac{x-1}{x}\right) = 1 + x$ bo'lsa,

[1,5 ball]

a) $f(2)$ ni toping?

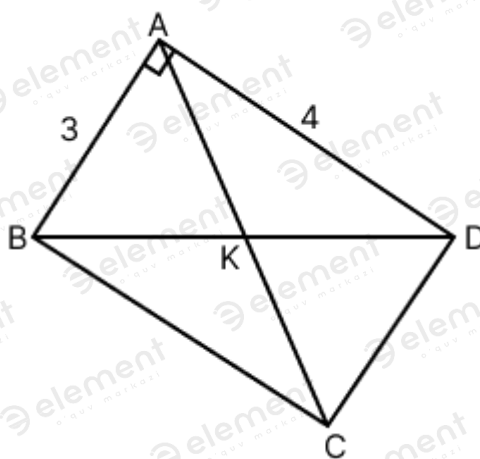
Javob: a) _____

[1,7 ball]

b) $f(-1)$ ni toping?

Javob: b) _____

44. Shaklda $ABCD$ to'rtburchak. $AC = 3AK$, $AB = 3$, $AD = 4$ bo'lsa,



[1,5 ball]

a) $ABCD$ to'rtburchak yuzini toping.

Javob: a) _____

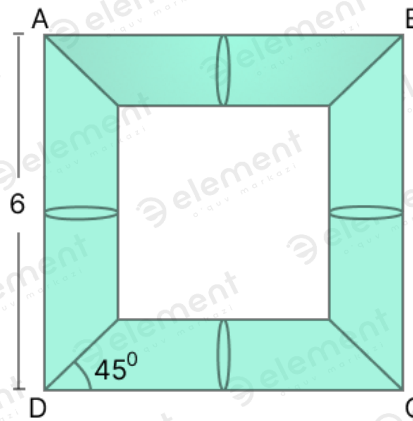
[1,7 ball]

b) BDC uchburchak yuzini toping.

Javob: b) _____



45. Kvadrat shakldagi silindrik akvarium tasvirlangan. Silindrning radiusi 2 cm , $AD = 16\text{ cm}$ bo'lsa,



[1,5 ball]

a) akvariumning hajmini cm^3 toping ($\pi - 3$ ga teng).

Javob: a) _____

[1,7 ball]

b) akvariumga necha litr suv ketadi ($\pi - 3$ ga teng).

Javob: b) _____



JAVOBI

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

36	a	1
	b	-1
37	a	4
	b	5
38	a	12
	b	$108\sqrt{3}$
39	a	$-\frac{\pi}{2}$
	b	2π
40	a	6
	b	15
41	a	$\frac{\pi}{6}$
	b	$\frac{\pi\sqrt{3}}{9}$
42	a	42π
	b	42π
43	a	$\frac{3}{4}$
	b	$-\frac{3}{4}$
44	a	18
	b	12
45	a	576 cm^3
	b	$0,576 \text{ l}$