

Test №10

1. Soddashtiring:
$$\frac{\sqrt{\left(\frac{9-2\sqrt{3}}{\sqrt{3}-\sqrt[3]{2}}+3\sqrt[3]{2}\right)\sqrt{3}}}{3+\sqrt[6]{108}}$$

A) 2 B) 1 C) $\sqrt{3}$ D) $\sqrt[3]{2}$
2. $\frac{2019^4+2019^2+1}{2019^3+1} = a + \frac{b}{c}$ bo'lsa
 $\left(\frac{b}{c} \text{ qisqarmas kasr, } b < 2000 \text{ va } a, b, c \text{ lar natural sonlar}\right), a + b + c = ?$

A) 2021 B) 4041 C) 4040 D) 2021
3. $3 \cdot 3^2 \cdot 3^3 \cdot \dots \cdot 3^{100}$ sonining oxirgi raqamini toping.

A) 9 B) 3 C) 7 D) 1
4. a va b lar orasidagi munosabatni toping.

$$a = \frac{206}{200} + \frac{208}{202} + \dots + \frac{216}{210}$$

$$b = \frac{99}{100} + \frac{100}{101} + \dots + \frac{104}{105}$$

A) $b+24=a$ B) $b+3a=24$ C) $3b+a=24$ D) $2b+a=24$
5. 120000 ning barcha juft natural bo'luvchilari yig'indisini toping.

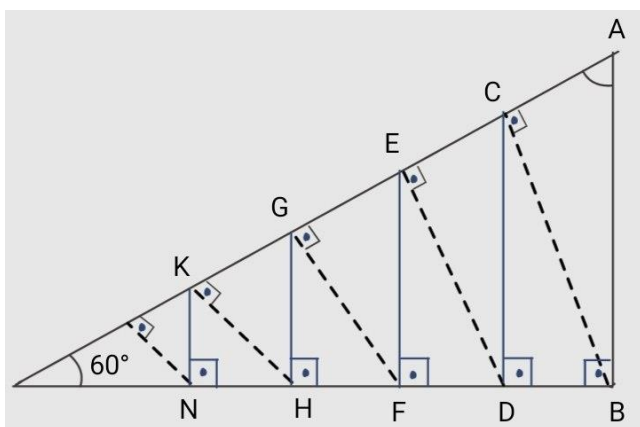
A) 393624 B) 396748 C) 369748 D) 369478
6. $1^2 + 2^2 - 3^2 + 4^2 - 5^2 + 6^2 + 7^2 - 8^2 + 9^2 - 10^2 + \dots - 100^2 = ?$

Bu yerda 2 ta sonning oldi ishorasi "+", keyingi 1 ta sonning ishorasi "-", keyingi 1 ta sonning ishorasi "+", keyingi 1 ta sonning ishorasi "-" ko'rinishida davom qilgan.

A) 69690 B) 59590 C) 65650 D) 50500
7. $a + b = \frac{1}{a} + \frac{1}{b} = 10$ bo'lsa, $\frac{b}{a} + \frac{a}{b} = ?$

A) 55 B) 99 C) 89 D) 98
8. Quduq qazishda chuqurlikning 1-metri uchun 2 so'm, har keying metr uchun avvalgisidan 3 so'm ortiq to'landi. Bundan tashqari butun quduq uchun qo'shimcha 80 so'm to'landi. Quduqning har bir metri o'rtacha 22 so'm 50 tiyinga tushgan. Quduqning chuqurligi butun son bilan ifodalansa, uning qiymatini toping.

A) 5 B) 6 C) 7 D) 8 E) 9
- 9.



Quyidagi chizmada $AB=12$ va $\angle BAC = 30^\circ$. Chizmaga ko'ra $AB + CD + EF + GH + KN + \dots$ yig'indini qiymatini hisoblang.

- A)15 B)16 D)4 E)8

10. $P(x) = ax^{2009} + bx^{2013} + 5$ ko'phadni $x - 1$ ga bo'lganda qoldiq 7 ga teng bo'lsa, $P(x)$ ko'phadni $x^2 + 1$ ga bo'lgandagi qoldiqni toping.

- A) $7x+1$ B) $x+7$ C) $2x+5$ D) $2x+7$ E) $7x+2$

11. $y = x + \frac{1}{x+1}$ funksiyaning $(-1; \infty)$ oraliqdagi eng kichik qiymatini toping.

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

12. Tenglamani yeching : $\sqrt{x + \sqrt{4x + \sqrt{16x + \dots + \sqrt{4^{44}x + 3}}} = \sqrt{x} + 1$

- A) 2^{-44} B) 2^{88} C) 2^{44} D) 2^{-88}

13. $x = 10$ bo'lsa, quyidagini hisoblang :

$$a^2 \frac{(x-b)(x-c)}{(a-b)(a-c)} + b^2 \frac{(x-a)(x-c)}{(b-a)(b-c)} + c^2 \frac{(x-a)(x-b)}{(c-a)(c-b)}$$

- A)1 B)10 C)100 D)10000

14. $f(x)$ davri $T = \frac{1}{3}$ bo'lgan funksiya uchun $f^2(2) - 5f(0) + \frac{21}{4} = 0$ va

$4f^2(-1) - 5f\left(\frac{10}{3}\right) = 35$ bo'lsa, $f(1) = ?$

- A)2.5 B)3 C)3.5 D)4

15. a ning barcha qiymatlarini toping, bunda

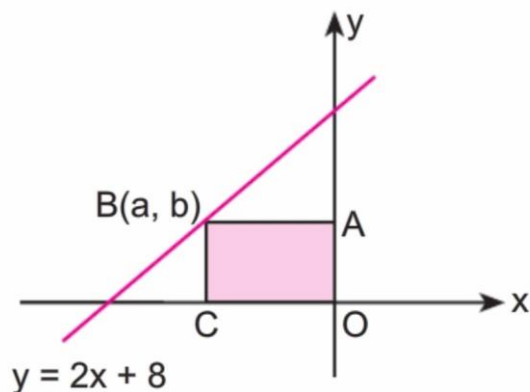
$$1 + \log_5(x^2+1) \geq \log_5(cx^2+4x+c) \text{ tengsizlik barcha } x \text{ lar uchun o'rinli bo'lsin.}$$

- A) $(-\infty; 3)$ B) $(-\infty; 5)$ C) $(3; 5)$ D) $(2; 3]$

16. Hisoblang : $\arcsin \frac{8}{17} + \arccos \left(-\frac{3}{5}\right) - \arcsin \frac{77}{85}$

- A) $\frac{\pi}{2}$ B) $\frac{\pi}{3}$ C) $\frac{\pi}{6}$ D) $\frac{\pi}{4}$

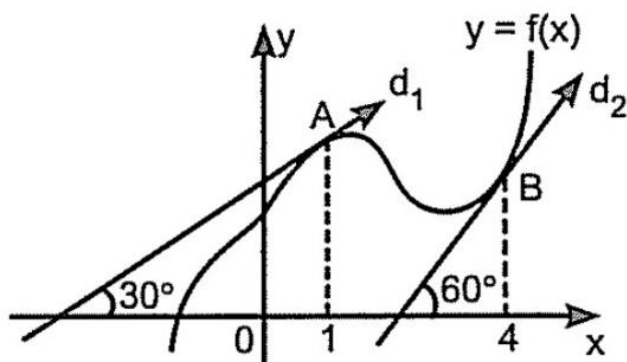
17.



AOCB to'g'rito'rtburchakning B uchi $y=2x+8$ to'g'ri chiziqda yotadi. Bu to'rtburchakning yuzasi eng katta bo'ladigan a va b larning yig'indisini toping.

- A)1 B)2 C)3 D)4 E)5

18.

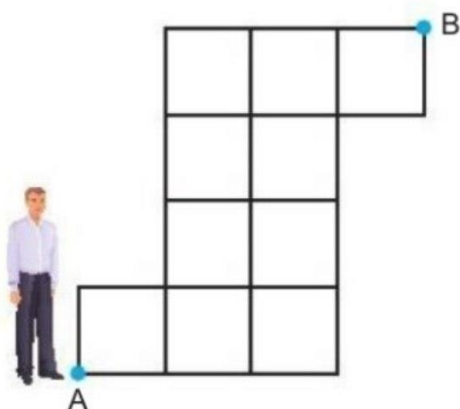


Rasmda $y = f(x)$ funksiyaning A nuqtasi d_1 to'g'ri chiziqda va B nuqtasi d_2 to'g'ri chiziqda yotishi ma'lum bo'lsa, quyidagi integralni hisoblang :

$$\int_1^4 f''(x) dx = ?$$

- A) $\frac{4\sqrt{3}}{3}$ B) $\sqrt{3}$ C) $\frac{2\sqrt{3}}{3}$ D) $\frac{\sqrt{3}}{3}$ E) $\frac{\sqrt{3}}{6}$

19.



A nuqtadagi odam rasmdagi chiziqlar bo'yicha eng qisqa yo'l bilan B nuqtaga necha xil yo'l bilan yetib borishi mumkin?

A)24 B)25 C)30 D)36 E)41

20. Quyidagi ifodaning yoyilmasidagi x^5 ning koeffitsiyentini toping.

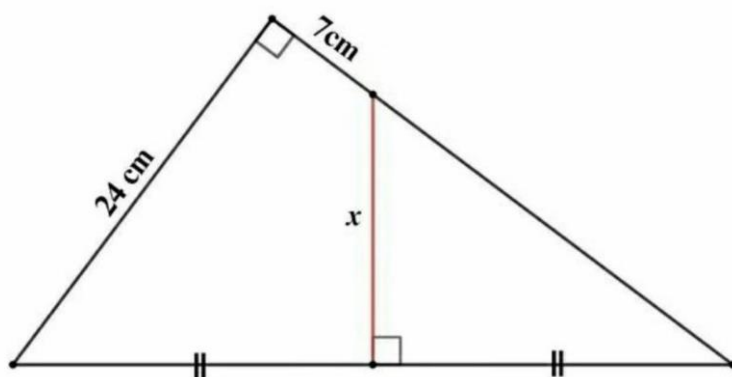
$$\left(x + \frac{1}{x}\right)^{10} \cdot \left(x - \frac{1}{x}\right)^9.$$

A)-21 B)642 C)35D)120

21. $x \neq 2$ va $c \in \mathbb{R}$ bo'lsa, $\int (x - 2) \cdot f(4x + 1)dx = 4x^3 - 32x + c$ dan foydalanib $f'(5)$ ni hisoblang.

A)-1 B)2 C)3 D)4 E)5

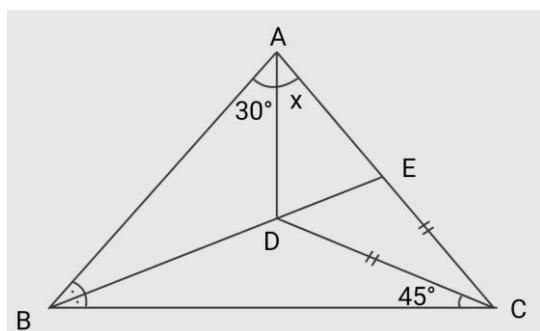
22.



Rasmdagi ma'lumotlar asosida x ni toping.

A)20 B)25 C)40 D)15 E)30

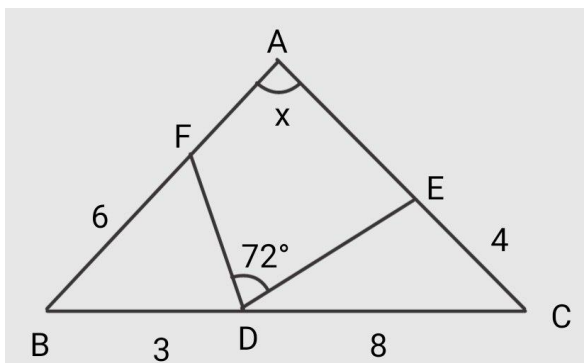
23.



Chizmadan foydalanib $\angle DAC$ burchakni toping.

A)20 B)25 C)40 D)15 E)30

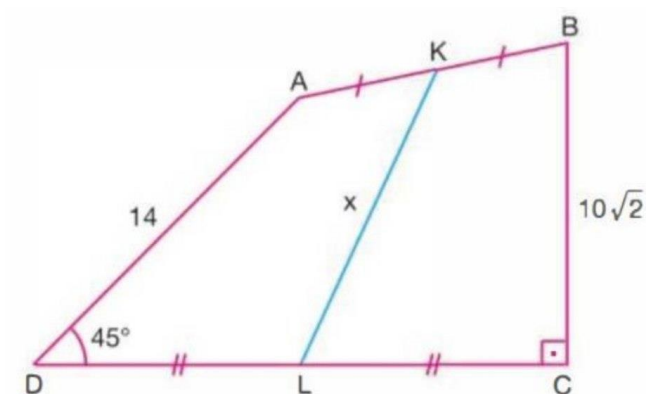
24.



Rasmdagi ma'lumotlar va $AB=AC$ ekanligidan foydalanib $\angle BAC$ burchakni toping.

- A)72 B)36 C)18 D)48

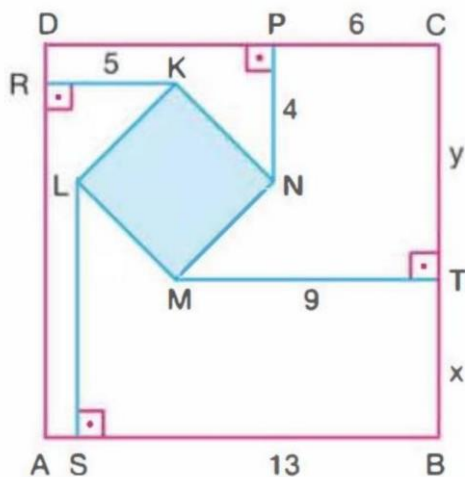
25.



Berilganlar asosida KL kesma uzunligini toping.

- A) $6\sqrt{2}$ B) $8\sqrt{2}$ C)12 D)13 E) $12\sqrt{2}$

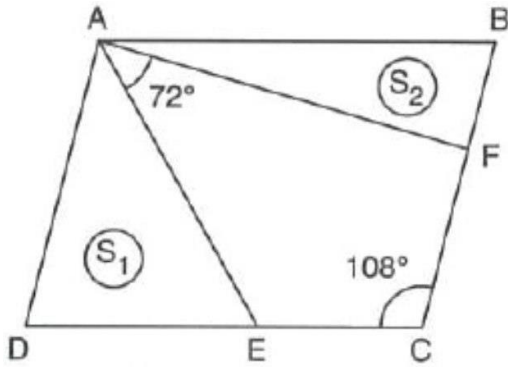
26.



Rasmdagi ABCD va KLMN lar kvadrat ekanligidan foydalanib $\frac{x}{y}$ ni toping.

- A) $\frac{1}{3}$ B) $\frac{7}{8}$ C)1 D) $\frac{5}{9}$ E) $\frac{6}{11}$

27.



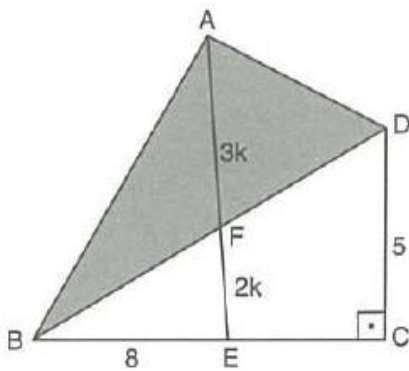
ABCD parallelogram va $AF=8$, $AE=4$,
 $BF = DE$.

$$\frac{S_1}{S_2} = ?$$

Bu yerda $S_1 = S_{ADE}$ va $S_2 = S_{ABF}$.

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

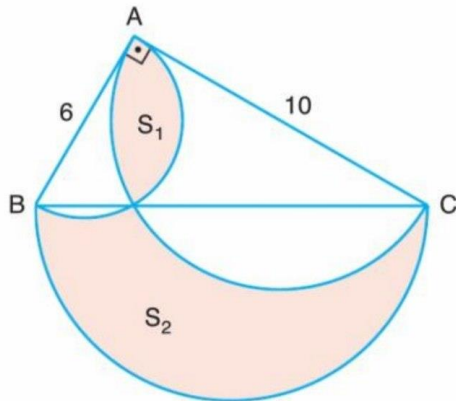
28.



Rasmdagi ma'lumotlar asosida ABD
 uchburchak yuzasini hisoblang.

- A)20 B)30 C)40 D)50 E)60

29.



ABC uchburchakning tomonlari yarim
 doiralar yasalgan bo'lsa, $S_2 - S_1$ ni
 toping.

- A)10 B)15 C) 6π D) 10π E)30

30. Muntazam to'rtburchakli piramidaning balandligi 8 ga, asosining tomoni 12 ga teng. Piramida yon yog'iga parallel bo'lib, asosining markazi orqali o'tgan kesimi yuzini hisoblang.

- A)45 B)60 C)72 D)30 E)50