

## Matematika-2019.

1. Tenglamani yeching.  $x^{x^{2019}} = 2019$

- A) 2019 B)  $\sqrt{2019}$  C)  $^{2018}\sqrt{2019}$  D)  $^{2019}\sqrt{2019}$

2.  $\lim_{x \rightarrow 2019} \frac{x^{2019} - 1}{x^{4038} - 1}$  limitni hisoblang.

- A)  $2019^{2019}$  B) 2019  
C)  $\frac{1}{2019^{2019}}$  D)  $\frac{1}{2019^{2019} + 1}$

3.  $\frac{2019 + 2019i}{2019 - 2019i} + \frac{2019 - 2019i}{2019 + 2019i}$  kompleks sonni

hisoblang.

- A)  $2i$  B)  $2019i$  C)  $i$  D) 0

4.  $\log_{2018}(x - 1) \geq 1$  Tengsizlikni yeching.

- A)  $x \in (2018; \infty)$  B)  $x \in (2019; \infty)$   
C)  $x \in (0; \infty)$  D)  $x \in (-\infty; 1) \cup (2019; \infty)$

5. Modiy nuqta kordinatalari parametric ko'rinishda berilgan,  $x$  va  $y$  kordinatalar orasidagi bog'lanishni aniqlang va  $y'(2019)$  ni

toping.  $\begin{cases} x = 2019 t^2 + 2018 \\ y = 2020 t \end{cases}$

- A)  $\frac{\sqrt{2019}}{2019}$  B) Mavjud emas  
C)  $\frac{2020 \sqrt{2019}}{2019}$  D)  $\frac{1010 \sqrt{2019}}{2019}$

6.  $\int_0^1 \frac{2019 x^{2018} - 2019}{x^{2019} - 2019 x + 2019} dx$

integralni hisoblang.

- A) 0 B) 1 C)  $\ln \frac{1}{2019}$  D)  $\ln 2019$

7.  $y = f(x)$  funksiyaning grafigini absissa o'qidan 2019 marta cho'zish ordinata o'qiga 2019 marta siqish natijasida hosil bo'lgan funktsiyani toping.

- A)  $y = 2019 f\left(\frac{x}{2019}\right)$  B)  $y = 2019 f(x) + 2019$   
C)  $y = 2019 f(2019 x)$  D)  $y = \frac{1}{2019} f(2019 x)$

8.  $0.\underbrace{0000 \dots 0}_{2013} \dots 3 \cdot 0.000000673$  ni standart

shaklida yozing va shu sonning mantissasini

toping.

- A)  $2,019 \cdot 10^{-2019}$  shu soning mantissasi 2019  
B)  $2019 \cdot 10^{-2020}$  shu soning mantissasi 2,019  
C)  $2,019 \cdot 10^{-2019}$  shu soning mantissasi -2019  
D)  $2,019 \cdot 10^{-2019}$  shu soning mantissasi 2,019

9.  $f(x) = x^{2019} + 2019x + 2019$  funktsiya berilgan

bo'lsa u holda  $\frac{f'(x)}{\ln(x - 2019)} \geq 0$  tengsizlikni

yeching.

- A)  $(2020; \infty)$  B)  $(2019; 2020)$   
C)  $(-\infty; 2020)$  D)  $(2019; \infty)$

10.  $y = \arcsin(3x - 2018)$  funksiyaning aniqlanish sohasini toping.

- A)  $\left[672 \frac{1}{3}; 673\right]$  B)  $[-673; 673]$   
C)  $[0; 673]$  D)  $\left[672 \frac{2}{3}; 673\right]$

11.  $(x - 2019 - y)^2 + 8076y - 4x$  ifodaning eng kichik qiymatini toping.

- A) 2019 B) 4 C) -2019 D) -4

12.  $2018 + \frac{2019}{2018 + \frac{2019}{2018 + \frac{2019}{\ddots}}} = a$  bo'lsa  $2019^a$

ni toping.

- A) 2019 B)  $2019^2$  C)  $2019 \cdot 2018$  D) 4038

13.  $\cos^{2018} x + \sin^{2019} x = 1$  Tenglamani yeching.

- A)  $\frac{\pi}{2} + 2\pi n; 2\pi n \quad n \in \mathbb{Z}$   
B)  $\frac{\pi}{2} + \pi n; \pi n \quad n \in \mathbb{Z}$   
C)  $\frac{\pi}{2} + 2\pi n; \pi n \quad n \in \mathbb{Z}$   
D)  $\frac{\pi}{2} + 2\pi n; \pi + 2\pi n \quad n \in \mathbb{Z}$

14.  $2017(2018 \cdot 2019 + 1)$  ifoda quyidagilarning qaysi biriga teng.

- A)  $2018^3$  B)  $2018^3 + 1$  C)  $2018^3 - 1$  D)  $2019^3 - 1$

15.  $\cos^2 x + 2018 \cos x - 2019 x \geq 0$  tengsizlikni  $[0; 2019]$  orasida ildizlar sonini toping.

- A) 322 B) 673 C) 0 D) 343

16. Agar  $\frac{x^2}{y+x} + \frac{y^2}{y+z} + \frac{z^2}{x+z} = 2019$   $|x| \neq |y| \neq |z|$

bo'lsa  $\frac{y^2}{y+x} + \frac{z^2}{y+z} + \frac{x^2}{x+z} =$  ni uchdan birini

toping.

- A) 2019 B) 2018 C) 1 D) 673

17.

$$\frac{2019 \cdot 2018}{1 + \frac{1}{2018!} + \frac{1}{2017!}} + \frac{2018 \cdot 2017}{\frac{1}{2017!} + \frac{1}{2016!}} + \dots + \frac{3 \cdot 2}{\frac{1}{1!} + \frac{1}{2!}} + 2022$$

- A) 2020 ! B) 2019 !+2020  
C) 2019!+2 D) 2020 !+2019

18.  $abc = 1$  bo'lsa

$$\frac{2019}{1+a+ab} + \frac{2019}{1+b+bc} + \frac{2019}{1+c+ac} = ?$$

- A) 2 B) 0 C) 1 D) 2019

19.

$$\frac{\frac{1}{2}}{1 + \frac{1}{2}} + \frac{\frac{1}{3}}{\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)} + \dots + \frac{\frac{1}{2019}}{\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)\dots\left(1 + \frac{1}{2019}\right)}$$

ni hisoblang.

- A)  $\frac{1009}{1010}$  B)  $\frac{2018}{2019}$  C)  $\frac{1009}{2020}$  D)  $\frac{2020}{1009}$

20.  $a = \frac{1 + \sqrt{1001}}{2}$  bo'lsa  $(4a^3 - 1004a - 1001) = ?$

- A) 1 B) 0 C) -1 D) 2019

21.

$$\left(\sqrt{\sqrt{2019} + \sqrt{2018}}\right)^x + \left(\sqrt{\sqrt{2019} - \sqrt{2018}}\right)^x = 2$$

tenglamani yeching.

- A) 0 B) 1 C) 2019 D) 2018

22.  $(x - 2019)^4 + (x - 2018)^4 = 97$  tenglamani yeching.

- A)  $\emptyset$  B) 1 C) 2019 D) 2016

23.  $2017 \cdot (2018^{10} + 2018^9 + \dots + 2018^2 + 2019) + 1$  ni hisoblang.

- A)  $2018^8$  B)  $2018^{10}$  C)  $2018^{11}$  D)  $2018^{11} + 1$

24.  $a + b + c = 2019$  va  $\frac{1}{a+b} + \frac{1}{b+c} + \frac{1}{a+c} = 1$

$$a + b + c - \left(\frac{a}{b+c} + \frac{b}{c+a} + \frac{c}{a+b}\right) = ?$$

- A) -3 B) 6 C) 3 D)  $a, b, c$  ga bog'liq.

25.  $\left| \begin{matrix} 2019 & 2018 \\ 2017 & 2016 \end{matrix} \right| = 2019 \cdot x$  Tenglamani yeching ?

- A) 2019 B) -1 C)  $\frac{2}{2019}$  D)  $-\frac{2}{2019}$

26. Muntazam qavariq 2019 burchakning eng katta diogonalini toping ? ( shaklning tamoni a ga teng )

- A)  $\frac{a}{2 \sin \frac{m}{4}}$  B)  $\frac{2a}{\sin \frac{m}{4}}$  C)  $\frac{4a}{\sin \frac{m}{4}}$  D)  $\frac{a}{4 \sin \frac{m}{4}}$

27.  $\triangle ABC$  da AC tamoni teng 2019 bo'lakka bo'lindi va har bir bo'linish nuqtasidan BC tamoniga parallel to'g'ri chiziqlar o'tkazildi. Shaklda hosil bo'lgan eng kichik va eng katta uchburchak yuzlarini nisbatini toping ?

- A)  $2019^2$  B)  $2018^2$  C) 2018 D) 2019

28. ABCD trapetsiyada AB asos CD asosdan 2019 marta kata. Shu trapetsiyada diogonalari kesish nuqtasidan asoslariga parallel kesma o'tkazildi. Hosil bo'lgan trapetsiya yuzlari nisbatini toping ?

- A)  $\frac{2019 \cdot 3029}{1011}$  B)  $\frac{2019 \cdot 2018}{4037}$   
C)  $\frac{2019^2 \cdot 1011}{3029}$  D)  $\frac{2019 \cdot 4037}{2018}$

29. To'g'ri turtburchakning diogonaliga 2 tamonidan perpendikulyar kesmalar o'tkazilgan va diogonalning o'rtadagi qismi qolgan har biridan 2019 marta kata. Shakldagi eng kata uchburchak yuzidan eng kichik uchburchak yuzi necha marta kichik ?

- A) 2021 B) 2020 C) 2019 D) 2018

30.  $y=2019x-1$  to'g'ri chiziqning  $y=2018x-1$  to'g'ri chiziqqa nisbatan simmetrigini toping ?

- A)  $y = \frac{2018^2}{2019}x + 1$  B)  $y = \frac{2018^2}{2019}x - 1$   
C)  $y = \frac{2019^2}{2018}x + 1$  D)  $y = \frac{2019^2}{2018}x - 1$

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