

Шайтонни жаннатдан Аллоҳ ланатлаб қувган вақти шайтон Аллоҳга шундай деган экан:
— Мен одамзотни 4 томонидан хужум қиламан дебди.

1. Олди томонидан чиқиб бойликка нафсбузарликка ўргатаман,
2. Ўнг томонидан келиб зинога номаҳрамга қарашга,
3. Чап томонидан келиб ҳаром йеб, ҳаром ичишга,
4. Орқа томонидан кеб дўзахга ўзим билан тортиб кетаман дебди.

Шунда Аллоҳ: "ҳа боравер шундай қилишга уруниб кўрчи", дебди.

Фаришталар Аллоҳдан сўрашибди:

— Нимага сен шайтонга одамга бунчалик хужум қилишига рухсат бердинг. Одамлар сени кўрмай туруб сенга ибодат қилишади сен яна уларга 4 томонидан шайтон юбораяпсан дебди

Шунда Аллоҳ:

— Шайтон 4 томонни айтдию 2 томонни унитиб Кўйди. Бандаларим пастга қараб намоз ўқиб менга ибодат қиладилар, а мен уларга юқори тарафдан баракани ёғдираман деган экан...

Uzum mevasi Alloh yaratgan eng barakali mahsulot hisoblanar ekan. Bizning bilimimiz ham uzum mevalari kabi barakali va barchani hojatini chiqaradigan bo'lsin.



1) Teng yonli uchburchakning yon tomonlari a va asosi b ga teng bo'lsa, unga ichki va tashqi chizilgan aylana markazlari orasidagi masofani toping.

Javob: $\sqrt{R^2 - 2Rr}$ formulaga qo'yamiz.

2) 5 ta mandarin va 4 ta olmadan nechta mandarin va olma juftligini tuzish mumkin?

3) Teng yonli uchburchakning asosi 8 ga va yon tomoniga tushirilgan medianasi 10 ga teng bo'lsa, yon tomonini toping.

4) Katetlari a va b ga teng bo'lgan to'g'ri burchakli uchburchakning katta katetiga urinib shu katet qarshisidagi uch orqali o'tib, markazi gipotenuzada bo'lgan doiraning yuzini toping.

5) Katetlari a va b ga teng bo'lgan to'g'ri burchakli uchburchakning katta katetiga urinib shu katet qarshisidagi uch orqali o'tib, markazi gipotenuzada bo'lgan aylananing uzunligini toping.

6) Katetlari a va b ga teng bo'lgan to'g'ri burchakli uchburchakning katta katetiga urinib shu katet qarshisidagi uch orqali o'tib, markazi gipotenuzada bo'lgan doiraning radiusini toping.

7) Hisoblang:

$$\sqrt{4^{12} + 6^{13} + 9^{13}} - \sqrt{4^{12} - 6^{13} + 9^{13}}$$

8) Hisoblang:

$$\sqrt{4^{15} + 6^{16} + 9^{16}} - \sqrt{4^{15} - 6^{16} + 9^{16}}$$

9) 3 ta yashikda 64,2 kg olma bor. Ikkinchi yashikda birinchisining 0,8 qismicha olma, uchinchi yashikda ikkinchisining 42,5% iga teng olma bor bo'lsa, uchinchi yashikda qancha olma bor?

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uchinchi yashikda ikkinchisining 42,5% iga teng olma bor bo'lsa, birinchi yashikda qancha olma bor?

12) Uchburchakning uchta tomoni a, b, c ga teng bo'lsa, unga ichki chizilgan aylana radiusini toping.

13) Uchburchakning uchta tomoni a, b, c ga teng bo'lsa, unga tashqi chizilgan aylana radiusini toping.

14) Soddalashtiring:

$$\left(\sin^{-1} \alpha + \frac{1}{\operatorname{tg} \alpha}\right) \cdot \frac{1}{\operatorname{tg} \frac{\alpha}{2}}$$

15) Soddalashtiring:

$$7 \sin^2 \alpha + 7 \cos^2 \alpha - 5$$

16) $\frac{x^3+27}{x+3}$ ifodaning eng kichik butun qiymatini toping?

17) *Prizma* bu - ...

18) Tengsizlikni yeching. $2^{\sqrt{x+1}-6} \geq 2^{4-\sqrt{x+1}}$.

19) Teng yonli uchburchakning asosi a ga va yon tomoni b ga teng bo'lsa, asosidagi burchakning kosinusini toping.

20) Teng yonli uchburchakning asosi a ga va yon tomoni b ga teng bo'lsa, asosidagi burchakning sinusini toping.

21) Teng yonli uchburchakning asosi a ga va yon tomoni b ga teng bo'lsa, asosidagi burchakning tangensini toping.

22) Teng yonli uchburchakning asosi a ga va yon tomoni b ga teng bo'lsa, asosidagi burchakning kotangensini toping.

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26) Teng yonli uchburchakning asosi a ga va yon tomoni b ga teng bo'lsa, uchidagi burchakning kotangensini toping.

27) Prizmaning asosi tomonlari 5 va 6 bo'lgan hamda o'tkir burchagi 45° bo'lgan parallelogrammdan iborat. Agar prizmaning yon qirrasi 4 ga teng va u asos tekisligi bilan 30° burchak tashkil qilsa, prizma hajmini toping.

28) Prizmaning asosi tomonlari 5 va 6 bo'lgan hamda o'tkir burchagi 45° bo'lgan parallelogrammdan iborat. Agar prizmaning yon qirrasi 4 ga teng va u asos tekisligi bilan 30° burchak tashkil qilsa, yon sirtini toping.

29) Prizmaning asosi tomonlari 5 va 6 bo'lgan hamda o'tkir burchagi 45° bo'lgan parallelogrammdan iborat. Agar prizmaning yon qirrasi 4 ga teng va u asos tekisligi bilan 30° burchak tashkil qilsa, to'la sirtini toping.

30) Prizmaning asosi tomonlari 5 va 6 bo'lgan hamda o'tkir burchagi 45° bo'lgan parallelogrammdan iborat. Agar prizmaning yon qirrasi 4 ga teng va u asos tekisligi bilan 30° burchak tashkil qilsa, balandligini toping.

31) Teng yonli trapetsiyaning asoslari 30 va 24 ga teng. Bu trapetsiyaning diagonallari o'zaro perpendikulyar bo'lsa, uning yuzini toping.

32)

$$\int_0^{\frac{\pi}{2}} \sin\left(2x + \frac{\pi}{3}\right) dx$$

integralni hisoblang.

33) Bir burchagi 60° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 60° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning yuzini toping.

34) Bir burchagi 60° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 60° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning perimetrini toping.

35) Bir burchagi 60° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 60° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning tomonlarini toping.

36) Bir burchagi 30° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 30° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning yuzini toping.

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39) Bir burchagi 45° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 45° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning yuzini toping.

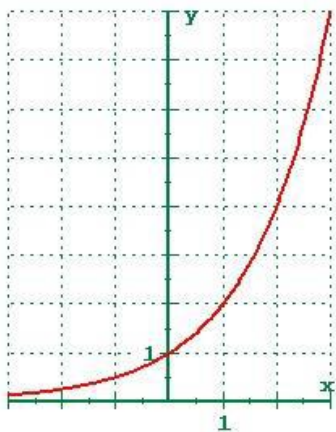
40) Bir burchagi 45° bo'lgan to'g'ri burchakli uchburchakka tomoni a ga teng bo'lgan romb shunday ichki chizilganki, 45° li burchak ular uchun umumiy, rombnning barcha uchlari rombnning tomonlarida yotadi. Uchburchakning perimetrini toping.

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42) a ning qanday eng kichik butun qiymatida $-x^2 - 10x + 5 < a$ tengsizlik x ning barcha qiymatlarida o'rinni bo'ladi?

43) Ushbu $\frac{5}{|x+2|+2} > |x+2| - 2$ tengsizlikni qanoatlantiruvchi butun sonlar nechta?

44) Grafik ko'rinishda berilgan funksiyani toping:



$y = \log_2 x$; $y = 2^x$; $y = \left(\frac{1}{2}\right)^x$; $y = e^x$

45) Agar $f(x) = 6 + 5tg^2x$ bo'lsa, $f'(\pi) = ?$

46) Tenglamaning ildizlari ko'paytmasini toping:

$$\left(\sqrt{5 + \sqrt{24}}\right)^x + \left(\sqrt{5 - \sqrt{24}}\right)^x = 10$$

Javob: $x_1 = 2; x_2 = -2$

47) $y = x^5 - 5x^4 - 2$ funksiyaning $(-1; 1)$ oraliqdagi eng katta qiymatini toping.

48) $y = x^5 - 5x^4 - 2$ funksiyaning $(-1; 1)$ oraliqdagi eng kichik qiymatini toping.

49) Agar nolga teng bo'lmagan $a, b, c \in \mathbb{R}$ sonlar uchun $\frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = 0$ bo'lsa, $\frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b} = ?$

50) Hisoblang: $\sin\left(\frac{1}{2} \arcsin\left(-\frac{2\sqrt{2}}{3}\right)\right)$

51) Ifodani soddalashtiring:

$$((\cos \alpha - \cos \beta)^2 + (\sin \alpha - \sin \beta)^2) : \left(4 \sin^2 \frac{\alpha - \beta}{2}\right)$$

52) To'g'ri keltirilgan integrallash formulasini ko'rsating:

1. $\int \sin(kx + b) dx = -\frac{1}{k} \cos(kx + b) + C$

2. $\int \cos(b - kx) dx = -\frac{1}{b} \sin(b - kx) + C$

3. $\int \operatorname{tg}(kx + b) dx = -\frac{1}{k} \ln|\cos(kx + b)| + C$

Javob: 1; 3

53) Integralni hisoblang:

$$\int_{-2}^2 |x - 2| dx$$

54) Tenglamaning ildizlari yig'indisini toping:

$$\frac{(5^x - 25)(7^x - 7)}{\sqrt{7 - 5x}} = 0$$

Javob: $x = 1$

55) Hisoblang:

$$\sqrt{4^{10} + 6^{11} + 9^{11}} - \sqrt{4^{10} - 6^{11} + 9^{11}}$$

Javob: $= \sqrt{(2^{10} + 3^{11})^2} - \sqrt{(3^{11} - 2^{10})^2} = 2 \cdot 3^{11}$

56) Qiymatlar sohasini toping:

$$y = \arcsin\left(\left|x - \frac{1}{2}\right| + |x|\right)$$

Javob: $\left[\frac{\pi}{6}; \frac{\pi}{2}\right]$

57) $x^3 = \left(\frac{1}{3}\right)^x + 1$ tenglamaning nechta yechimi bor?

Javob: 1 ta

58) $y = 4x^2$ va $y = -4x^2 - 8$ parabolalarga absissalar o'qi bilan o'tkir burchak tashkil qiladigan umumiy urinma o'tkazilgan. Shu urinmaning tenglamasini toping.

Javob: $y = 8x - 4$

59) $\int_0^1 x^9 \cdot (x^5 + 1)^{2n} \cdot (x^5 - 1)^{2n} dx = a$ bo'lsa, $\frac{1}{a} = ?$

60) Ifodaning qiymatini toping:

$$\frac{\left(\frac{1}{18}\right)^5 \cdot 64 \cdot \left(\frac{1}{27}\right)^{-4} + \left(\frac{1}{6}\right)^{-2}}{\left(\frac{2}{3}\right)^{-2}}$$

61) Ushbu $\log_{x^2} 13 = \log_{4-3x} 13$ tenglamaning ildizi 5 dan qanchaga kam?

62) Tenglamning ildizlari nisbatini toping:

$$x^2 - 11 + \sqrt{x^2 + 11} = 20$$

63) Agar $f(x) = 6 - 5tg^2x$ bo'lsa, $f'(\pi) = ?$

64) Bir nuqtadan aylanaga ikkita urinma o'tkazilgan. Har bir urinmaning uzunligi 12 sm, urinish nuqtalari orasidagi masofa 14,4 sm. Tekislikning shu aylana bilan chegaralangan soha yuzini toping.

65) Hisoblang: $\sin\left(\frac{1}{2} \arcsin\left(\frac{2\sqrt{2}}{3}\right)\right)$

66) Hisoblang:

$$1 - ((\cos \alpha - \cos \beta)^2 + (\sin \alpha - \sin \beta)^2) : \left(4 \sin^2 \frac{\alpha - \beta}{2}\right)$$

67) Uchta sonning uchinchi ikkinchisidan nechta ortiq bo'lsa, ikkinchi birinchisidan shuncha ortiq. Bu sonlardan ikkita kichigining ko'paytmasi 378, ikkita kattasining ko'paytmasi 504 ekanligi ma'lum, shu uchta son dan birinчисini toping.

68) Uchta sonning uchinchi ikkinchisidan nechta ortiq bo'lsa, ikkinchi birinchisidan shuncha ortiq. Bu sonlardan ikkita kichigining ko'paytmasi 378, ikkita kattasining ko'paytmasi 504 ekanligi ma'lum, shu uchta son dan ikkinchisi toping.

69) Uchta sonning uchinchi ikkinchisidan nechta ortiq bo'lsa, ikkinchi birinchisidan shuncha ortiq. Bu sonlardan ikkita kichigining ko'paytmasi 378, ikkita kattasining ko'paytmasi

504 ekanligi ma'lum, shu uchta son dan uchinчисini toping.

70) Tenglamani yeching:

$$2^{\sin^2 x} + 2^{\cos^2 x} = 3$$

71) $\sin x + \sin\left(x + \frac{2\pi}{3}\right) + \sin\left(x + \frac{4\pi}{3}\right) = ?$

72) Agar nolga teng bo'lmagan $a, b, c \in \mathbb{R}$ sonlar uchun $\frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = -1$ bo'lsa, $\frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b} = ?$

73) $\int_1^2 \frac{3}{2x-1} dx$ integralni hisoblang.

74) $\begin{cases} (x + xy^2 + y^2)(x + y^2)^2 = 225 \\ (x - xy^2 + y^2)(x + y^2)^2 = 25 \end{cases}$ sistemadan x va y ni toping.

Javob: javoblarni qo'yib ko'ramiz

75) $\int_0^{\frac{\pi}{2}} \frac{\cos x}{1 + \sin^2 x} dx$ ni hisoblang.

76) Ildizlari $x_1 = \frac{1}{10+6\sqrt{2}}$ va $x_2 = \frac{1}{10-\sqrt{72}}$ bo'lgan kavdrat tenglamani tuzing.

77) Ifodani soddalashtiring:

$$\frac{27 - \log_a^3 b^3}{(\log_a b + \log_b a + 1) \cdot \log_a \frac{a}{b}} \cdot \log_b^9 a = ?$$

78) Bir nuqtadan aylanaga ikkita urinma o'tkazilgan har bir urinmaning uzunligi 12 sm, urinish nuqtalari orasidagi masofa 14,4 sm. Shu aylananing radiusini toping.

79) $A = \{3; 4; 5; 6; 7; 8; 9; 10; 11\}$ va $B = \{5; 6; 7; 8; 9; 11\}$ to'plamlar berilgan bo'lsa, A va B to'plam kesishmasining qism to'plamlari sonini toping.

80) Bir nuqtadan aylanaga ikkita urinma o'tkazilgan. Har bir urinmaning uzunligi 15 sm, urinish nuqtalari orasidagi masofa 24 sm. Shu aylananing uzunligini toping.

81) a ning qanday eng katta qiymatida $4x^2 - 4x + 1 - a > 0$ tengsizlik x ning barcha qiymatlarida o'rinli bo'ladi?

82) Uchburchak uchlarining koordinatalari $A(-4; 2), B(6; 5), C(1; -4)$. A uchidan tushirilgan balandligi orqali o'tuvchi to'g'ri chiziq tenglamasini tuzing.

83) Quyidagi tasdiqlarning qaysilari to'g'ri?

1) Trapetsiyaning o'rta chizig'i uning dioganallarini teng ikkiga bo'ladi;

2) Agar teng yonli trapetsiyaning dioganali uning katta asosidagi burchagi bissektrissasi bo'lsa, u holda katta asos yon tomonga teng bo'ladi;

3) Agar teng yonli trapetsiyaning dioganali uning kichik asosidagi burchagi bissektrissasi bo'lsa, u holda katta asos yon tomonga teng bo'ladi.

84) Quyidagilardan qaysilari to'g'ri?

1) Agar $b > 0, a > c > 0$ bo'lsa, u holda $\frac{a}{b} > \frac{c}{b}$ bo'ladi;

2) Agar $a > 0, b > c > 0$ bo'lsa, u holda $\frac{a}{b} < \frac{a}{c}$ bo'ladi;

3) Agar $c > 0, b > a > 0$ bo'lsa, u holda $\frac{a}{b} > \frac{a+c}{b+c}$ bo'ladi.

85) Hisoblang:

$$\sqrt{4^8 + 2 \cdot 6^8 + 9^8} - \sqrt{4^7 + 6^8 + 9^8}$$

86) $\sqrt[3]{\frac{12}{5} \sqrt{\frac{244}{15(38^2 - 23^2)}}}$ ni hisoblang.

87) $\sqrt{4^{19} + 6^{20} + 9^{20}} + \sqrt{4^{19} - 6^{20} + 9^{20}}$ ifodani soddalashtiring.

88) Arifmetik progressiyada $a_{13} = 6a_8$ bo'lsa, uning dastlabki o'n uchta hadi yig'indisini toping.

89) Ifodani sodalashtiring: $\cos x + \operatorname{tg} x \cdot \sin x$

90) Agar $a = 6$ bo'lsa, ifodani soddalashtiring:

$$\frac{\left(25^{\frac{1}{2 \log_4 25}} + 2 \log_2 \log_2 \log_2 a^{2 \log_a 4}\right) \cdot 4^{-\frac{2}{\log_3 4}} - a^2}{1 - a}$$

91) Ifodani soddalashtiring: $\sqrt[5]{b^5} - \sqrt[4]{b^4} + \sqrt[6]{b^6} - \sqrt[7]{b^7}$, bu yerda $b < 0$.

92) $a^2 - b^2 + a + 7b - 12$ ni ko'paytuvchilarga ajrating.

93) Tenglamalar sistemasini yeching:

$$\begin{cases} 2^x \cdot 7^y = 28 \\ 2^x + 7^y = 11 \end{cases}$$

94) Perimetri 40 sm bo'lgan parallelogrammda diagonallar o'tkazilgan. Ikkita qo'shni uchburchaklar perimetrlari orasidagi ayirma 10 sm ga teng. Parallelogramm katta tomonining uzunligini toping.

95) $y = \frac{\sin x(\operatorname{ctg} x + 1) + \cos x(\operatorname{tg} x + 1)}{2}$ funksiyaning qiymatlari oshasini toping.

$$\text{Javob: } [-\sqrt{2}; -1] \cup (-1; 1) \cup (1; \sqrt{2}]$$

96) $f(x) = \frac{e^x}{\ln x} - \sqrt{\sin 3}$ bo'lsa, $f'(e) = ?$

97) $2^{\log_{0,8}(x) \cdot \log_{0,8}(1,25x)} > 1$ tengsizlikni yeching.

98) $2^{\sqrt{x-1}} - 6 \leq 2^{4-\sqrt{x-1}}$ tengsizlikni yeching.

99) $\int_{-5}^3 |x - 1| dx$ integralni hisoblang.

100) 1,2,2,3,3,3,4,4,4,4,5,5,5,5,5,6,6,6,6,6,... ketma - ketlikning 2017 - hadini toping?

101) $\sin^{100} x + \cos^{100} x = 1$ tenglamani yeching.

102) $x^{30} + x^{18} + x^7 + 1$ ko'phadni $x^6 - x^2$ ga bo'lgandagi qoldiqni toping.

103) $g(x) = x - 3$ va $f(g(x)) = 3x^2 - 7x + 5$ bo'lsa, $f'(g(x)) = ?$

104) $(x - 4)^3 + (x - 4)^2 + (x - 4)(x - 3) + (x - 3)^3 + (x - 3)^2 = 6$ tenglamani yeching.

105) $\int_1^2 \left(x + \frac{1}{x}\right)^2 dx$ integralni hisoblang.

106) Ifodani soddalashtiring:

$$\frac{1 - \log_a^3 b}{(\log_a b + \log_b a + 1) \cdot \log_a \frac{a}{b}} \cdot \log_{b^2} a$$

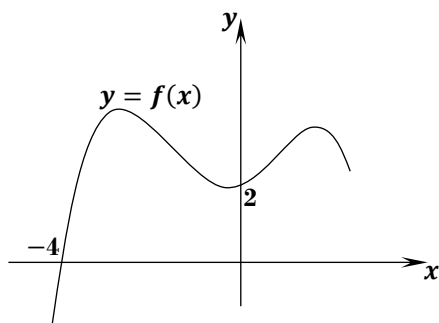
107) Agar $|a| \neq |b| \neq |c|$ va $\frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = 6$ bo'lsa, $\left(\frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b}\right) : (a + b + c) = ?$

108) A shahardan B shaharga 6 xil usulda borish mumkin, B shahardan C shaharga esa 4 xil usul bilan borish mumkin. Agar A dan D ga 2 xil usul bilan, D dan B ga ham 2 xil usul bilan borish mumkin bo'lsa, A dan C ga necha xil usul bilan borish mumkin?

Javob: 40

109) Bir nuqtadan aylanaga ikkita urinma o'tkazilgan. Har bir urinmaning uzunligi 20 sm, urinish nuqtalari orasidagi masofa 24 sm. Aylana uzunligini toping.

110) $y = f(x)$ funksiya grafigi berilgan. $\int_{-4}^0 |f(x)|^2 \cdot f'(x) dx$ integralni hisoblang.



111) $\int_{-3}^2 f(2x - 5) dx = 7$ bo'lsa, $\int_{-11}^{-1} f(x) dx$ ni qiymatini toping.

112) $\begin{vmatrix} 2018 & 2019 \\ 2020 & 2021 \end{vmatrix}$ determinantni hisoblang.

113) a ning qanday qiymatlarida $\int_3^a 3x - 1 dx = 4$ tenglik o'rinli bo'ladi?

114) Hisoblang: $\frac{(\sqrt{5}-\sqrt{11})(\sqrt{33}-\sqrt{15}+\sqrt{22}-\sqrt{10})}{\sqrt{75}-\sqrt{50}}$

115) Hisoblang: $\frac{(\sqrt{5}+\sqrt{11})(\sqrt{33}-\sqrt{15}+\sqrt{22}-\sqrt{10})}{\sqrt{75}+\sqrt{50}}$

116) Ifodani soddalashtiring: $\cos^4 \alpha + \cos^2 \alpha \cdot \sin^2 \alpha$

117) $\sin x = \frac{1}{2}$ bo'lsa, $6,8 + 2 \cos^2 x$ ni hisoblang.

118) Tenglamani ildizi 5 dan qanchaga kam?

$$\frac{(5^x - 25)(7^x - 49)}{\sqrt{7 + 5x}} = 0$$

119) Quyidagilardan qaysi biri to'g'ri?

1. Agar $a > 0$ bo'lsa, u holda $a + \frac{1}{a} \geq 2$ bo'ladi;
2. Agar $ab > 0$ bo'lsa, u holda $\frac{a}{b} + \frac{b}{a} \geq 2$ bo'ladi;
3. Agar $ab < 0$ bo'lsa, u holda $\frac{a}{b} + \frac{b}{a} \leq -2$ bo'ladi.

120) $f(x + 1) = f(x) + 2x + 1$ va $f(0) = 1$ bo'lsa, $f(15) = ?$

121) n sonining natural bo'luvchilari ketma - ket yozib chiqildi. 6 - va 20 - o'rinda turgan sonlarning ko'paytmasi n ga teng bo'lsa, n ning natural bo'luvchilari nechta?

122) To'g'ri burchakli uchburchakning gipotenuzasida nuqta olingan va shu nuqtadan katetlarga bo'lgan masofalar teng. Bu nuqta gipotenuzani 30 va 40 smli kesmalarga ajratadi. Uchburchakning yuzini toping.

123) $y = |x^2 + 2x - 3| - |x + 1|$ bo'lsa, $f'(1) = ?$

124) $\frac{\sin \alpha - \sin 2\alpha + \sin 3\alpha}{\cos \alpha - \cos 2\alpha + \cos 3\alpha}$ ifodani soddalashtiring.

125) $A(1; 3; 5)$ va $B(-2; 3; 5)$ nuqtalar berilgan. $C(x; 0; 0)$ nuqta A va B nuqtalardan bir xil uzoqlikda bo'lsa, $x = ?$

126) $\frac{\log_a b + \log_b a + 2}{(\log_a b + \log_{ab} b)^{-1}} \cdot \log_b a + 2$ ifodani soddalashtiring.

127) $\frac{\sin 3\alpha - \sin 4\alpha + \sin 5\alpha}{\cos 3\alpha - \cos 4\alpha + \cos 5\alpha}$ ifodani soddalashtiring.

128) ABC uchburchakda $\angle C = 90^\circ$, $\cos B = \frac{5}{13}$, $AB = 39$ bo'lsa, $AC = ?$

129) $f(2x - 1) = x^2 - x + 3$ bo'lsa, $f'(x)$ ga teskari funksiyani toping.

130) $-\frac{60}{|x|+7} < |x| - 9$ tengsizlikni qanoatlantirmaydigan butun sonlar nechta?

131) $\arcsin x \cdot (4 \arcsin x + 3 \arccos x) = \pi^2$ tenglamani yeching.

132) $(-3; -4)$ nuqtadan Ox o'qigacha bo'lgan masofani toping.

133) $(-3; -4)$ nuqtadan Oy o'qigacha bo'lgan masofani toping.

134) $3^{2x+1} - 5 \cdot 6^x + 2^{2x+1} = 0$ tenglamani yeching.

135) $b_1 + b_2 + b_3 = 126$ va $b_1 \cdot b_2 \cdot b_3 = 13824$ geometrik progressiyada b_1, b_2, b_3 sonlardan o'rtanchasining kvadratini toping.

136) Integralni hisoblang:

$$\int_1^4 \frac{1}{x^2} dx$$

137) $(m - 2)x^2 - 8x + 5$ ifoda x ning barcha qiymatlarida -2 dan kichik bo'lsa, m ni toping.

138) $2^{\sqrt{x-3}+1} - 6 \leq 2^{3-\sqrt{x-3}}$ tengsizlik nechta butun yechimga ega?

139) Agar $|a| \neq |b| \neq |c|$ va $\frac{a^2}{b+a} + \frac{b^2}{b+c} + \frac{c^2}{a+c} = 2$ bo'lsa, $\frac{b^2}{b+a} + \frac{c^2}{b+c} + \frac{a^2}{a+c} = ?$

140) $\log_{x-2}(x^3 - 14) = 3$ tenglamaning ildizlari yig'indisini toping.

141) $(\log_{11} x)^2 \leq 1$ tengsizlikning eng katta va eng kichik yechimlarining ko'paytmasini toping.

142) $\overline{53X2Y}$ sonni 10 ga bo'lganda 4 qoldiq qolsa, X ning qiymatlarini toping.

143) $y = e^{x^2+\ln x} + 2x$ bo'lsa, $y'(1) = ?$

144) x ning qanday qiymatlarida $f(x) = x^2 - 3x + 1$ funksiyaning hosilasi o'zidan kichik bo'ladi?

145) $7x^3 - 14x - ax^2 + a + 2 = 0$ tenglama uchta ildizga ega bo'lib, ikkitasi qarama - qarshi sonlar bo'lsa, $a^2 + 3$ ni toping.

146) $f(x) = \left\lfloor \frac{x-2}{5} \right\rfloor$ bo'lsa, $f'(10)$ ni toping. Bu yerda $[a] - a$ sonning butun qismi.

147) Temirning 72%i kesib olindi. Qolgan qismining og'irligi 64,2 kg bo'lsa, temirning kesib olingan qismining og'irligini toping.

148) $\left| \frac{6-3x}{1+3x} \right| > 0$ tengsizlikni yeching.

149) $ABCD A_1 B_1 C_1 D_1$ to'g'ri burchakli paralelepiped berilgan. $AB = 8, BC = 2, BB_1 =$

6 bo'lsa, $ABCDB_1C_1$ ko'pyoqning to'la sirti yuzini toping.

150) $\cos(\pi x) = 1$ tenglamaning (1; 6) oraliqdagi ildizlari ko'paytmasini toping.

151) Geometrik progressiyada $\begin{cases} b_1 + b_4 = 27 \\ b_2 b_3 = 72 \end{cases}$ bo'lsa, $S_4 = ?$

152) $|x - 3| < 4$ tengsizlikning butun ildizlarini toping.

153) Koordinatalar tekisligida $|x| + |y - 1| \leq 4$ tengsizlikning yechimlari hosil qilgan soha yuzini toping.

154) Koordinatalar tekisligida $|x + 3| + |y - 1| \leq 2$ tengsizlikning yechimlari hosil qilgan soha yuzini toping.

155) $(2x - 1)^{10}(x + 1)^2$ ko'phadning koeffitsiyentlari yig'indisini toping.

156) 10 kishi tennis musobaqasida oltin, kumush va bronza medallarini necha xil usulda olishi mumkin?

157) 5, 9, 13, ... ketma - ketlikning nechta hadi yig'indisi 13705 bo'ladi?

158) $f(x) = \begin{cases} 2b^2x^2 + 2ax + 2, & x \geq 2 \\ x^2 + 2bx + 1, & x < 2 \end{cases}$ va $f'(1) = 3, f'(3) = 4$ bo'lsa, $(a + b)^3 = ?$

159) $\overline{X714Y5}$ soni 55 ga bo'linsa, $X = ?$

160) Soddashtiring: $\operatorname{tg} \alpha + \operatorname{ctg} \alpha + \operatorname{tg} 3\alpha + \operatorname{ctg} 3\alpha = ?$

161) R radiusli aylanaga trapetsiya ichki chizilgan. Trapetsiyaning pastki asosi qolgan tomonlaridan ikki marta 2 marta katta. Trapetsiyaning yuzini toping.

162) $\frac{1}{\sin 200^\circ} + \frac{1}{\sqrt{3} \cos 20^\circ} = ?$

163) $\sin 200x \cos 199x - \sin 199x \cos 200x = 0$ tenglama $[0; 4\pi]$ oraliqda nechta yechimga ega?

164) Hisoblang: $\int_4^{16} \sqrt{x} dx = ?$

165) $y = 5 - 3^{x-2}$ funksiyaning qiymatlari sohasini toping.

166) Muntazam uchburchakli $ABCA_1B_1C_1$ prizmaaning asosi tomoni 1 ga teng. $|\overrightarrow{CE} - \overrightarrow{CB_1}| = ?$

167) 5 ta olma, 4 ta nok, 2 ta behidan bittadan olib nechta guruhlash tuzish mumkin?

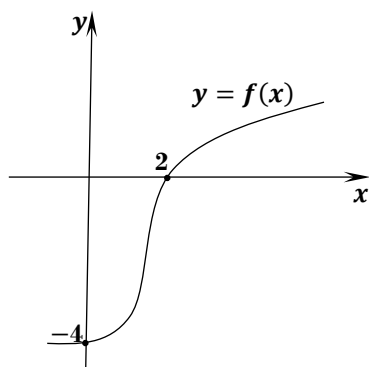
168) $\log_5^2(5x - 4) = 5 \log_5(5x - 4)$ tenglamani yeching.

169) Agar $(x - 5)^{10} + (2x - 9)^5 = 0$ bo'lsa, $10 - x = ?$

170) $\sqrt{12 - \sqrt{80}} - \sqrt{12 + \sqrt{80}} = ?$

171) Kubning diagonali va u bilan kesishmaydigan qirrasidagi masofa 5 ga teng bo'lsa, kubning hajmini toping.

171) $y = f(x)$ funksiya grafigi berilgan. $\int_0^2 [f(x)]^3 \cdot f'(x) dx$ integralni hisoblang.



172) To'g'ri burchakli uchburchakning gipotenuzasida nuqta olingan va shu nuqtadan katetlarga bo'lgan masofalar teng. Bu nuqta gipotenuzani $\frac{100}{3}$ va $\frac{50}{3}$ smli kesmalarga ajratadi. Uchburchakning katta katetini toping.

173) Agar $\log_2 \left(\log_{\frac{1}{2}} (\log_{625} (x^2 + x - 1)) \right) = 1$ bo'lsa, $x = ?$

174) $A = \{x: |x - 3| < 4, x \in \mathbb{N}\}$ to'plamning elementlari sonini toping.

175) $A \cap B = \{b; c; d\}, A \cap C = \{a; b\}$ bo'lsa, $A \cap (B \cup C)$ to'plam elementlarini toping.

176) $A \cap B = \{b; c; d\}, A \cap C = \{b; d\}$ bo'lsa, $A \cap (B \cup C)$ to'plam elementlarini toping.

$$177) \sqrt{x + \sqrt{4x + \sqrt{16x + \sqrt{\dots + \sqrt{4^{10}x + 1}}}}} =$$

$\sqrt{x} + 1$ tenglamaning natural sonlardan iborat nechta yechimi bor?

178) Agar $m = a \sin x + b \cos x$ va $n = -\sqrt{a^2 + b^2}$ bo'lsa, x nng istalgan qiymati uchun quyidagilardan qaysi biri o'rinli?

1) $m > n$; 2) $m < n$; 3) $m \geq n$; 4) $m \leq n$.

179) $y = |x - 4| - x^2$ funksiyaning monoton o'sish oralig'ini toping.

180) a ning qanday qiymatlarida $x^2 - x + a = 0$ va $ax^2 - x + 3 = 0$ tenglamalar kamida bitta umumiy ildizga ega bo'ladi?

181) Arifmetik progressiyada $9a_{11} = a_{19}$ bo'lsa, uning dastlabki 19 hadi yig'indisini toping.

182) Arifmetik progressiyada $a_9 = 4a_6$ bo'lsa, uning dastlabki 9 hadi yig'indisini toping.

183) Hech bir uchtasi bir to'g'ri chiziqda yotmaydigan 25 ta nuqtadan nechta uchburchak yasash mumkin?

184) $2x^2 - (2\sqrt{3} + 3\sqrt{2})x + \sqrt{6} + 2 = 0$ tenglamaning kichik ildizini toping.

185) a va b 6 ga bo'linmaydigan juft sonlar. a va b ni 6 ga bo'lganda bir xil qoldiq qoladi. $a + b$ ni 6 ga bo'lgandagi qoldiqni toping.

186) Ikkita son o'rta proporsionali shu sonlarning kichigidan 6 ga ko'p, o'rta arifmetigi esa kattasidan 7 ga kam bo'lsa, shu sonlarni toping.

187) $\sqrt{21 - \sqrt{21 + x}} = x$ tenglama nechta natural yechimga ega?

188) $f(x) = \left(\frac{1}{3}\right)^{x^2 - 6x + 11}$ funksiyaning qiymatlari sohasini toping.

189) $a = \frac{1}{6} (\log_2^3 3 - \log_2^3 6 - \log_2^3 12 + \log_2^3 24)$ bo'lsa, 2^a ni toping.

190) Hisoblang: $\left(27 \cdot \left(10,6 - \sqrt{3^3 \sqrt{9}} - 9^{\frac{3}{5}} \cdot \sqrt[3]{9\sqrt{3}}\right)\right)^{-\frac{18}{5}}$

191) $(1 - 2)^2 + (3 - 4)^2 + (5 - 6)^2 + (7 - 8)^2 + \dots + (17 - 18)^2 - ((15 - 17)^2 + (13 - 15)^2 + \dots + (1 - 3)^2)$ ni hisoblang.

192) Asosi muntazama uchburchakdan tashkil topgan piramidani apofemasi 15 ga, balandligi 9 ga teng bo'lsa, piramidaning hajmini toping.

193) $\frac{3}{|x-1|+1} \geq |x-1| - 1$ tengsizlik nechta butun yechimga ega?

194) $\int_{\frac{3\pi}{2}}^{2\pi} \cos\left(2x + \frac{\pi}{4}\right) dx$ integralni hisoblang.

195) $\cos 140^\circ + \cos 120^\circ + \cos 20^\circ$ ni hisoblang.

196) $9 \cdot 10^{\frac{1}{\log_x^2 10}} + x^{2 \lg x} - 190 = 0$ tenglamani yeching.

197) $y = 2^x - 2$ funksiyaning qiymatlari sohasini toping.

198) $(a - 7b)^2 - 42b + 6a$ ifodaning eng kichik qiymatini toping.

199) $ABCD$ trapetsiyaning asoslari $AD = 30$ va $BC = 24$ hamda $AB = 12$, $\angle A = 60^\circ$. Diagonallari O nuqtada kesishadi. COD uchburchak yuzini toping.

200) Konusning yasovchisi 15 ga teng. Yon sirtining yuzi 135π ga teng bo'lsa, shu konusga ichki chizilgan shar hajmini toping.

201) $f(x) = (a + b - 6)x^3 + 2x^2 + (b - 3)x$ funksiya juft funksiya bo'lsa, $f(a) + f(b)$ ni toping.

202) To'g'ri burchakli trapetsiyaning diagonali yon tomoniga teng. Balandligi 6 ga, yon tomoni 12 ga teng bo'lsa, o'rta chizig'ini toping.

203) Koordinatalar tekisligida $|x + 3| + |y + 1| \leq 6$ tengsizlikning yechimlari tashkil etgan sohaning yuzini toping.

204)
$$\sqrt{x + \sqrt{4x + \sqrt{16x + \sqrt{\dots + \sqrt{4^{10}x + 3}}}}} = \sqrt{x} + 1$$
 tenglamaning natural sonlardan iborat nechta yechimi bor?

205) $1^3 + 2^3 + 3^3 + \dots + 12^3$ son qaysi sonning kvadrati bo'ladi?

206) Quyidagilardan qaysi biri $f(x) = [x]$ funksiyaning grafigi bo'ladi?

207) Quyidagilardan qaysi biri $f(x) = \{x\}$ funksiyaning grafigi bo'ladi?

208) $ABCD$ qavariq to'rtburchakka aylana ichki chizilgan. $AB = 3$, $BC = 4$, $CD = 5$ bo'lsa, $AD = ?$

209) Agar $f(x) = \lg(x^2 - 6x + 8)$ bo'lsa, $f'(x)$ funksiyaning qiymatlari sohasini toping.

210) Yon tomoni 17 ga teng bo'lgan teng yonli trapetsiyaga diametri 15 ga teng bo'lgan aylana ichki chizilgan. Trapetsiyaning asoslarini toping.

211) $\left(\frac{33}{21^3 \sqrt{18^3 \sqrt{81-15}} \sqrt{4^3 \sqrt{192}}}\right)^{-9}$ ni hisoblang.

212) $f(x) = \ln(x^2 - 5x + 6)$ funksiyaning aniqlanish sohasini toping.

213) $\left(625^{\frac{1}{4} - \frac{1}{2} \log_{25} 4} + 8\right) \cdot \sqrt{2} - 8$ ni hisoblang.

214) Agar $\begin{cases} \operatorname{tg} \alpha + \operatorname{tg} \beta = 4 \\ \operatorname{ctg} \alpha + \operatorname{ctg} \beta = 2 \end{cases}$ bo'lsa, $\operatorname{tg}(\alpha + \beta) = ?$

215) $a \geq 0$, $b > 0$, $\sqrt{a} \geq b$ bo'lsa, $\sqrt{\frac{a+b^2}{b} + 2\sqrt{a}} - \sqrt{\frac{a+b^2}{b} - 2\sqrt{a}} = ?$

217) $ABCD$ parallelogramning BC tomonida E nuqta olingan. A burchak bissektrisasi E nuqtada BC tomon bilan kesishadi. $AB = 9$, $AD = 15$ bo'lsa, BE va EC ni toping.

218) $\cos \frac{2\pi x}{3} = 3^{\sqrt{x^2 - x - 12}}$ tenglamani yeching.

219) $\int_0^2 f(2x + 3) dx = 15$ bo'lsa, $\int_0^{10} f(x) dx = ?$

220) $\int_{-3}^1 \frac{1}{x^3} dx$ integralni hisoblang.

221) $y = \left(\frac{2}{3}\right)^{-2+x^2}$ funksiyaning qiymatlari to'plamini toping.

222) $f(x) = x^7 - \ln x$ funksiya grafigiga $x = 1$ nuqtada o'tkazilgan urinmaning tenglamasini tuzing.

223) $\int (kx + b)^p + 4 dx$ integralni hisoblang.

224) $\sqrt{x + 2\sqrt{x-1}} - \sqrt{x - 2\sqrt{x-1}}$ ifodaning $x = 2,01$ dagi qiymatini hisoblang.

225) $\left| \frac{x^2 - 5x + 6}{x - 3} \right| \geq \frac{4}{5}$ tengsizlikni yeching.

226) 300 dan keyin keladigan to'rtinchi tub sonni 2 ga bo'lgandagi qoldiqni toping.

Javob: nechinchi tub son bo'lishidan qat'iy nazar doim 1 ga teng.

227) $|x^2 - 11x + 24| = |x^2 - 12|$ tenglamaning natural ildizlari yig'indisining eng katta ildiziga nisbatini toping.

228) $\operatorname{tg}^2 \varphi + \operatorname{ctg}^2 \beta$ ning eng kichik qiymatini toping.

229) $y = \ln x^{\ln x^{\ln x}}$ bo'lsa, $y' = ?$

230) $y = ax^2 - bx + c$ funksiyaning grafigi 1 -, 2 -, 4 - choraklardan o'tishi uchun a, b, c lar qanday munosabatda bo'lishi kerak?

231) Qirradi 50 sm ga teng kubning ichini qirradi 5 sm ga teng kubchalar bilan to'ldirish uchun nechta kubcha kerak bo'ladi?

232) $\overline{43X5Y}$ sonni 10 ga bo'lgandagi qoldig'i 4 ga teng hamda 9 ga qoldiqsiz bo'linsa, x ning olishi mumkin bo'lgan eng kichik qiymatini toping?

233) To'g'ri burchakli uchburchakning gipotenuzasi 6 ga, ichki chizilgan aylana radiusi 1 ga teng bo'lsa, uchburchakning perimetrini toping.

$$234) \frac{\sqrt{5-\sqrt{5-\sqrt{5-\dots}}}}{\sqrt{6-\sqrt{6-\sqrt{6-\dots}}}} - \frac{\sqrt{7-\sqrt{7-\sqrt{7-\dots}}}}{\sqrt{8-\sqrt{8-\sqrt{8-\dots}}}} = ?$$

235) Muntazam ko'pburchakka ichki va tashqi chizilgan aylanalarda radiuslari R va r , tomoni a ga teng bo'lsa, $\frac{(R-r)(R+r)}{a^2}$ ni toping.

236) $\int \sin 3x dx$ ni toping.

237) $x \cdot \sqrt{x^2 - 10} \geq x^2 - 6$ tengsizlikni qanoatlantiruvchi butun sonlarning yig'indisini toping.

238) 6 xonali son berilgan. Uning birinchi raqami 1 ga teng. Shu sonning birinchi raqamini uning oxiriga ko'chirib, berilgan sondan uch marta katta son hosil bo'ladi. U qaysi son?

239) $\sin 54^\circ \sin 18^\circ$ ni hisoblang?

240) Teng yonli to'g'ri burchakli uchburchakka ichki chizilgan aylana radiusi r ga teng bo'lsa, uning yarim perimetrini toping.

241) Agar $a^4 \sqrt[4]{b} = c^3$ bo'lsa, $4 \log_2 a^2 + \log_4 b - \log_{\sqrt{2}}(2c^3)$ ni hisoblang.

242) $a + 2b + 2c = 0$ bo'lsa, $\frac{a}{b+c} + \frac{b}{a+2c} + \frac{c}{a+2b} = ?$

243) $\int_2^{14} \frac{4}{x \ln 7} dx$ integralni hisoblang.

244) $|x| + a - 3 \geq 0$ tengsizlik x ning barcha qiymatlarida o'rinli bo'lsa, $a = ?$

245) $(2 + \operatorname{tg}^2 \alpha + \operatorname{ctg}^2 \alpha) \cdot \operatorname{tg}^2 \alpha$ ifodani soddalashtiring.

246) Arifmetik progressiyada $a_{15} = 37$, $a_5 + a_6 = 36$ bo'lsa, $a_1 \cdot a_2 = ?$

247) $\begin{cases} x^2 - 3xy = 6 \\ 4y^2 - xy = 3 \end{cases}$ tenglamalar sistemasi nechta yechimga ega?

248) $y = -2,6x + b$ funksiyaning grafigi $C\left(1; \frac{1}{2}\right)$ nuqtadan o'tsa, b ni toping.

249) $A(-a - 2; a - 5)$ nuqta koordinatalar tekisligining 4 - choragida joylashgan bo'lsa, $a = ?$

250) n ta uchi bo'lgan prizmaning nechta diagonal kesimi mavjud?

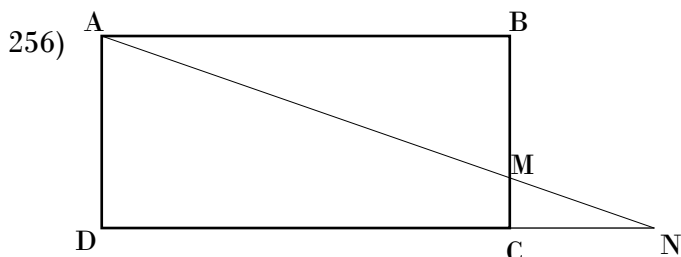
251) $\frac{1}{2 \cdot 5} + \frac{1}{5 \cdot 8} + \frac{1}{8 \cdot 11} + \frac{1}{11 \cdot 14} + \frac{1}{14 \cdot 17}$ ni hisoblang.

252) $\frac{1}{\operatorname{tg}^2 \alpha} + \frac{1}{\operatorname{ctg}^2 \alpha} + \frac{1}{\sin^2 \alpha} + \frac{1}{\cos^2 \alpha} - 2$ ni soddalashtiring.

253) Alpinist birinchi kuni 800 m balandlikka chiqdi. Qolgan kunlari oldingi kunga qaraganda 25 m kam balandlikka chiqdi. U 6300 m ga necha kunda ko'tarilgan?

254) $(a + b + c) : \left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right) : \frac{\frac{1}{a} + \frac{1}{b} + \frac{1}{c}}{a+b+c}$ ifodani soddalashtiring.

255) $2^{x^2-1} - 3^{x^2} = 3^{x^2-1} - 2^{x^2+2}$ tenglamaning ildizlarini toping.



$BM:MC = 3:1$ va $S_{MNC} = 12$ bo'lsa, $S_{ABCD} = ?$

257) Argumentning qanday qiymatida $y = \frac{1}{|x+2|-|x-2|}$ funksiyaning qiymati 1 ga teng bo'ladi?

258) $x^{\lg^2 x} \cdot 2^{-\lg x} = 1$ tenglamani yeching.

259) $\log_{\frac{1}{11+x^2}}(12x - 24) > -1$ tengsizlikni yeching.

260) ABC uchburchak balandliklari kesishish nuqtasi H , ichki chizilgan aylana markazi esa I . Agar $\angle A = 40^\circ, \angle B = 75^\circ$ ga teng bo'lsa, IAH burchakni toping.

261) $\int_0^1 f(3x - 5) dx = 8$ bo'lsa, $\int_{-5}^{-2} f(x) dx$ ning qiymatini toping.

262) $1^3 + 2^3 + 3^3 + \dots + 10^3$ qaysi sonning kvadrati?

263) 6 ni 7 ga bo'lganda hosil bo'ladigan sonning 2018 - o'rnida turgan raqamini toping.

264) $x^2 - 7|x| + 10 = a$ tenglama a ning qanday qiymatida 3 ta yechimga ega bo'ladi?

265) To'g'ri burchakli uchburchakning o'tkir burchagi bissektrisasi qarshisidagi katetni 2 va 3 ga teng kesmalarga ajratadi. Uchburchakning yuzini toping.

266) Agar $f^3(x)$ va $\frac{1}{f(x)}$ funksiyalarning $x = 1$ nuqtadagi hosilalari 9 va -3 bo'lsa, $f'(1)$ ni toping.

267) $1 + 2 + 2^2 + \dots + 2^{22}$ ni hisoblang.

268) Tenglamani yeching:

$$\sqrt{x + \sqrt{x + \sqrt{x + \dots}}} = \sqrt{x \sqrt{x \sqrt{x} \dots}}$$

269) Aniqmas integralni hisoblang: $\int x \cdot \ln x dx$

270) Tenglamani yeching: $|\sin x + \cos x| = \sqrt{2} \sin 2x$

271) $\frac{\sqrt{21+12\sqrt{3}} - \sqrt{|12\sqrt{3}-21|}}{\sqrt{3}}$ ni hisoblang.

272) $xy = 5, x + y = -5$ bo'lsa, $(3 + 2x)^2 y + (3 + 2y)^2 x$ ni toping.

273) Diyora dugonasining telefon raqamining oxirgi raqamini esidan chiqarib qo'ydi. Uning bir urinishda unutilgan raqamni topish imkonining ehtimoli nimaga teng?

Javob: $\frac{1}{10}$

274) $\frac{1}{p}$ sof davriy kasrning 2018 - raqami 2 ga teng bo'lsa, $\frac{p-1}{p}$ ning 2018 - raqamini toping.

Javob: 7

275) Tomoni a ga teng bo'lgan kvadrat shunday qir qilganki, natijada eng katta yuzaga ega bo'lgan muntazam sakkizburchak hosil bo'lgan. Sakkizburchakning yuzini toping.

276) $y = |x^2 - 6x - 1|$ funksiyaning eng kichik qiymatini toping.

277) $f(x) = \log_3(-x^2 + 4x + 12)$ funksiyaning qiymatlari sohasini toping.

278) $x^4 + 3x^3 - 2x^2 + 4x - 5$ ko'phadni $-5x$ ga bo'lgandagi qoldiqni toping.

279) Soddalashtiring: $\frac{1}{\sin 70^\circ} + 4 \cos 140^\circ$

280) $|3 + 2x - x^2| = a$ tenglama a ning qanday qiymatlarida 3 ta yechimga ega?

281) $\frac{x}{10} + \frac{y}{12} = 0,15$ to'g'ri chiziqning Oy o'qi bilan hosil qilgan burchagi α bo'lsa, $\operatorname{tg} \alpha + \operatorname{ctg} \alpha$ ni toping.

282) Quti sirtini 75%ini bo'yash uchun 450 gr bo'yoq ishlatildi. Quti sirtini 100%ini bo'yash uchun necha kg bo'yoq ishlatiladi.

283) $y = x^x$ funksiyaning hosilasini toping.

284) $y = ax^2 - bx + c$ kvadrat funksiyaning grafigi 1 - va 2 - choraklarda bo'lishi uchun a va b sonlar qanday munosabatda bo'lishi kerak?

285) $y = \ln(6 \sin x - 8 \cos x)$ funksiyaning qiymatlari sohasini toping.

286) Teng yonli to'g'ri burchakli ABC uchburchak berilgan. AB gipotenuzada yotuvchi M va N nuqtalar shunday olinganki, $AM = AC, BN = BC$. $\angle MCN = ?$

287) Tomoni 18 ga teng bo'lgan $ABCD$ kvadrat berilgan. M nuqta BC tomonni teng ikkiga, N nuqta DC tomonni 2:1 nisbatda bo'ladi. $ABMN$ to'rtburchak yuzini toping.

288) $f^2(x)$ va $\frac{1}{f(x)}$ funksiyalarning $x = 10$ nuqtadagi hosilalari mos ravishda 4 va -2 ga teng bo'lsa, $f'(10)$ ni toping.

289) $\int \left(\frac{2}{\cos^2 2x} - \frac{3}{\sin^2 3x} \right) dx$ integralni hisoblang.

290) $\operatorname{tg} x = 3$ tenglamaning $\left(-\frac{\pi}{2}; \frac{\pi}{2}\right)$ oraliqdagi yechimini toping.

291) $\operatorname{tg} x = 2$ tenglama $\left(-\frac{\pi}{2}; \frac{\pi}{2}\right)$ oraliqda nechta yechimga ega?

292) $x^2 + y^2 - 12|x| - 12|y| + 63 \leq 0$ tengsizlikning yechimlari hosil qilgan sohaning yuzini toping.

293) a va b ni 4 ga bo'lganda har xil qoldiq qolsa, $a^2 - b^2$ ni 8 ga bo'lganda qanday qoldiqlar qolishi mumkin?

294) $y = x(x - 2)(x - 4)(x - 6) + 2015$ funksiya eng kichik qiymatiga ega bo'ladigan x larning yig'indisini toping.

295) Oddiy kasr qachon noto'g'ri kasr bo'ladi?

296) ABC uchburchakda $AC = 15, BC = 41, AB = 52$ ga teng. AB tomonda D nuqta shunday olinganki $AD:DB = 15:37$. $CD = ?$

297) $1 \cdot 2 + 2 \cdot 3 + 3 \cdot 4 + \dots + 99 \cdot 100 - 1^2 - 2^2 - 3^2 - \dots - 100^2$ ni hisoblang.

298) $f(x) = \frac{\cos x}{\operatorname{ctg}^2 x + 1}$ funksiyaning $\left(\frac{\pi}{2}; 2\right)$ nuqtadan o'tuvchi boshlang'ich funksiyaning toping.

299) ABC uchburchak PQK uchburchakka teng. PQK uchburchakning burchaklari $40^\circ, 60^\circ, 80^\circ$ ga teng. ABC uchburchakning burchaklarini toping.

300) Uchta son geometrik progressiya hosil qiladi. Ularning yig'indisi 19 ga, ko'paytmasi 216 ga teng. Bu hadlar kvadratlarining yig'indisini toping.

301) 5 ta juft raqamdan foydalanib nechta 5 xonali son hosil qilish mumkin?

Javob: 2500

302) 7 ta bola izma - iz bir qatorda turibdi. Ularning turgan o'rinlarini almashtirib nechta qator tuzish mumkin?

303) 8 ni 7 ga bo'lganda hosil bo'ladigan sonning 2018 - o'rnida turgan raqamini toping.

304) $ax^3 + bx^2 + 1$ ko'phad $x^2 + x - 1$ ga bo'linsa, a va b butun sonlarning yig'indisini toping.

305) $p(x) = x^2 - mx - 4, p(-1) = 4$ bo'lsa, $p(-2) = ?$

306) $\int_{-3}^2 \frac{1}{\sqrt{9-x^2}} dx$ integralni hisoblang.

307) $y = g(x) \cdot \frac{1}{2\sqrt{x}}$ funksiyaning hosilasini toping.

308) Geometrik progressiyada $b_1 + b_4 = 54, b_2 + b_3 = 36$ bo'lsa, geometrik progressiyaning maxrajini toping.

309) $2^{\sqrt{\log_2 5}} - 5^{\sqrt{\log_5 2}}$ ni hisoblang.

310) Bir necha xonali natural sonning oxiriga ikkita nol raqami yozildi va hosil bo'lgan sondan

dastlabki son ayrildi. Hosil bo'lgan son quyidagilarning qaysi biriga bo'linmaydi?

- 1) 9; 2) 3; 3) 11; 4) 55.

311) $2^x - 2^{-x} + 4 = a^2 - 5a$ tenglama yechimga ega bo'lmaydigan a ning qiymatlarini toping.

312) Uchburchakning tomonlari 7, 8, 9 ga teng. Katta tomoniga yopishgan burchaklarining bissektrisalarini o'tkazishdan uchta uchburchak va bitta to'rtburchak ajraladi. Uchburchakning uzunligi 7 ga teng bo'lgan tomoniga yopishgan uchburchakning yuzini toping.

313) Qutida 45 ta shar bor. Ulardan 17 tasi oq bo'lib, 2 ta oq bo'lmagan shar yo'qolib qoldi. Qutidan bittalab olinganda oq sharning tushish ehtimolini toping.

314) $P(x)$ - ko'phad. $(x - 1) \cdot P(x) = (x + 5) \cdot P(x - 1)$ bo'lsa, $P(x)$ ni toping.

315) Teng yonli uchburchakning uchidagi burchagi 120° ga, asosi 6 ga teng. Balandliklarining kesishish nuqtasidan asosiga parallel holda o'tuvchi tekislik atrofida aylantirishdan hosil bo'lgan jismning hajmini toping.

316) $\sqrt{3}\text{ctg } 200^\circ + 4 \cos 200^\circ$ ni hisoblang.

317) $\cos 20^\circ - 2 \cos 40^\circ - \cos 80^\circ$ ni hisoblang.

318) $x^2 \cdot 4^{\sqrt{x}} < 4^{\sqrt{x}+1}$ tengsizlikni yeching.

319) $\frac{\arcsin \frac{8}{17} - \text{arctg} \frac{1}{4}}{\text{arcctg } 4}$ ni hisoblang.

320) 6 ta katakni 2 ta qizil, 1 ta oq, 1 ta ko'k, 1 ta qora, 1 ta yashilga necha xil usul bilan bo'yash mumkin?

321) $y = x^2 + 3x + 1$ funksiyaning hosilasi o'ziga teng bo'lganda, x ni toping.

322) $\int_0^{\frac{\pi}{2}} \sin x \cdot \cos x dx$ integralni hisoblang.

323) Agar $x \in \left(\frac{\pi}{2}; \pi\right)$ bo'lsa, $\sin x |\cos x| + \cos x |\sin x|$ ifodani soddalashtiring.

324) Muntazam oltiburchakli prizmaning yon yog'ining yuzi Q ga teng. Shu prizmaning eng katta diagonal kesimi yuzini toping.

325) Muntazam oltiburchakli prizmaning yon yog'ining yuzi Q ga teng. Shu prizmaning eng kichik diagonal kesimi yuzini toping.

326) $f(x) = x^2 \cdot \text{ctgx} \cdot \ln x$ bo'lsa, $f'(1)$ ni toping.

327) $\int_4^9 \left(2x - \frac{3}{\sqrt{x}}\right) dx$ integralni hisoblang.

328) To'g'ri burchakli parallelepiped asosi tomonlari 8 va 15 ga teng. Agar uning diagonal asos bilan 45° li burchak tashkil etsa, uning hajmini toping.

329) $y = \sqrt{kx + b}$ funksiyaning hosilaini toping.

330) $y = \frac{a^{g(x)+c}}{\ln a}$ funksiyaning hosilasini toping.

331) $2 + 2^{2x+y} - 2^{x+1} - 2^{y+1} = 0$ ifodadan x ni y orqali ifodalang. Bunda $x \neq 0$.

332) $\frac{\cos 40^\circ + \cos 80^\circ}{\cos 200^\circ}$ ni hisoblang.

333) $\frac{\sin \frac{\alpha}{2} - \sin \alpha + \sin \frac{3\alpha}{2}}{\cos \frac{\alpha}{2} - \cos \alpha + \cos \frac{3\alpha}{2}}$ ifodani soddalashtiring.

334) $\sqrt{2^{x+1} - 7} = 9 - 2 \cdot 2^x$ tenglamanning ildizi x_0 bo'lsa, $x_0 + 1$ ni toping.

335) $\left(\left(\frac{x^2}{y^3} + \frac{1}{x}\right) : \left(\frac{x}{y^2} - \frac{1}{y} + \frac{1}{x}\right)\right) : \frac{(x-y)^2 + 4xy}{1+yx^{-1}}$ ifodani soddalashtiring.

336) Ikkita konsentrik aylanalardan kattasining uzunligi 40 sm ga teng bo'lgan vatari kichigiga urinadi. Agar halqaning kengligi 10 sm bo'lsa, katta aylananing radiusini toping.

337) Ikkita konsentrik aylanalardan kattasining uzunligi 40 sm ga teng bo'lgan vatari kichigiga urinadi. Agar halqaning kengligi 10 sm bo'lsa, kichik aylananing radiusini toping.

338) Ikkita konsentrik aylanalardan kattasining uzunligi 40 sm ga teng bo'lgan vatari kichigiga urinadi. Agar halqaning kengligi 10 sm bo'lsa, halqaning yuzini toping.

339) Muntazam oltiburchak ichidan ixtiyoriy nuqta olingan. Bu nuqtadan tomonlargacha bo'lgan masofalar yig'indisi 18 ga teng bo'lsa, oltiburchak yuzini toping.

340) Muntazam oltiburchak ichidan ixtiyoriy nuqta olingan. Bu nuqtadan tomonlargacha bo'lgan masofalar yig'indisi 18 ga teng bo'lsa, oltiburchak perimetrini toping.

341) Parallelogrammning perimetri 120 ga, o'tkir burchagi 60° ga teng. Diagonali o'tmas burchagini 3:1 nisbatda bo'lsa, uning yuzini toping.

342) $x^2 \cdot 4^{\sqrt{x}} > 4^{\sqrt{x}+1}$ tengsizlikning yechimi bo'lmaydigan nomanfiy butun sonlar yig'indisini toping.

343) Bir odamning oddiy yilning 7 - sanasida tug'ilish ehtimolini toping.

344) $f(2x - 3) = 2x - 2$ bo'lsa, $f(f(5))$ ni toping.

345) Trapetsiyaning asoslari 24 va 30 ga, asosidagi burchaklaridan biri 60° ga teng. Yon tomonlari davom ettirilganda 90° burchak ostida kesishsa, trapetsiyaning yuzini toping.

346) Kubni nechta simmetrik bo'lakka bo'lish mumkin?

347) $y = \sqrt{(x^2 - 5x + 6)^3}$ bo'lsa, $y' = ?$

348) $\int_0^5 \frac{1}{\sqrt{x+4}} dx$ integralni hisoblang.

349) Rombning diagonallari a va $a\sqrt{3}$ bo'lishi uchun rombning burchaklari necha gradusdan bo'lishi kerak?

350) $\sqrt{2 - \sqrt{2 - \sqrt{2 - \dots}}}$ ni hisoblang.

351) To'g'ri burchakli uchburchakka ichki chizilgan aylana radiusi 3 ga, bir kateti esa 10 ga teng. Shu uchburchakka tashqi chizilgan aylana radiusini toping.

352) Asosidagi burchagi 75° ga, yon tomoni uzunligi esa $\sqrt{2 + \sqrt{3}}$ ga teng bo'lgan teng yonli uchburchakning asosini toping.

353) $(x^2 + 2x)(x^2 + 2x - 3) \geq 40$ tengsizlikni qanoatlantirmaydigan eng katta va eng kichik butun yechimlarini yig'indisini toping.

354) $\int_3^5 \frac{x^2 - 4x + 5}{x - 2} dx$ integralni hisoblang.

355) Qutida "kombinatorika" so'zini hosil qiluvchi barcha harflar bor. Ixtiyoriy tanlashda "k" harfi chiqish ehtimolligini toping.

356) Konsertga boshlovchilikka 4 o'g'il bola va 2 ta qiz boladan bitta qiz va bitta yigitni tanlash uchun nechta usul bor?

357) $y = 3x^2$ funksiya grafigini 4 birlik yuqoriga, 2 birlik o'ngga siljitish (parallel ko'chirish) natijasida hosil bo'lgan funktsiyani toping.

358) $(\operatorname{tg} 5^\circ + \operatorname{tg} 3^\circ) \cdot \operatorname{ctg} 8^\circ + (\operatorname{tg} 5^\circ - \operatorname{tg} 3^\circ) \cdot \operatorname{ctg} 2^\circ$ ifodani soddalashtiring.

359) 9 ta xatni 9 xil joyga 2 tadan necha xil usul bilan tarqatish mumkin.

360) $2 \lg^2 x + (1 - \sqrt{\lg 2}) \cdot \lg x^2 = 2\sqrt{\lg 2}$ tenglamaning eng kichik yechimini toping.

361) $\log_{16} (\sqrt{7 - \sqrt{48}} + \sqrt{7 + \sqrt{48}})$ ni hisoblang.

362) Aylanaga uchta vatar o'tkazilgan. Har bir vatar juft - juft bo'lib kesishadi va har bir vatar teng uchta qismga ajraladi. Bir vatarning uzunligi 9 ga teng bo'lsa, aylananing radiusini toping.

363) $\sqrt{1 + x^2 - x} + \sqrt{1 + x^2 - \sqrt{3}x} = \sqrt{2}$ tenglamani yeching.

364) $\sin \frac{\pi}{4} \cdot \sin \frac{3\pi}{4} \cdot \sin \frac{5\pi}{4} \cdot \dots \cdot \sin \frac{31\pi}{4}$ ni hisoblang.

365) $\int \frac{1}{1+x^4} dx$ integralni hisoblang.

366) $y = \frac{15}{x-5} + \frac{|7x^2+2x-5|}{2}$ funksiya nechta nuqtada hosilaga ega emas?

367) $||\lg|x|| = x + 2$ tenglama nechta yechimga ega?

368) $f(x) + x = 2 \cdot f(2x)$ bo'lsa, $f(x) = ?$

369) $22^{22} + 44^{44} + 66^{66} + 88^{88}$ ifoani 5 ga bo'lgandagi qoldiqni toping.

370) Argumentning qanday qiymatida $y = \frac{5x}{2|x+1|-5}$ funksiyaning qiymati 2 ga teng bo'ladi?

371) $27\sqrt{-x} - x^2 \geq 0$ tengsizlikni yeching.

372) $y = \log_2(x^2 - 4x + 20)$ funksiyaning eng kichik qiymatini toping.

373) 400 dan katta dastlabki 3 ta tub sonning yig'indisini toping.

374) $y = -x^2 + 6x - 5, y = -x^2 + 4x - 3, y = 3x - 15$ chiziqlar bilan chegaralangan soha yuzini toping.

375) $(x + 3)^{x^2-16} > 1$ tengsizlikni yeching.

376) $\overline{ab} + \overline{ba} + \overline{aa} + \overline{bb} = 286$, bu yerda $\overline{ab}, \overline{ba}, \overline{aa}, \overline{bb}$ lar ikki xonali sonlar bo'lsa, \overline{ab} ning eng kichik qiymatini toping.

377) $2 + \sin \alpha + \operatorname{ctg} \left(\frac{3\pi}{4} - \frac{\alpha}{2} \right) \cdot \cos \alpha$ ifodani soddalashtiring.

378) $(8x - 25)^{17} + (2x + 5)^{34} = 0$ tenglama ildizlarining o'rta arifmetigini toping.

379) $1 - \sin 4\alpha + \operatorname{ctg} \left(\frac{3\pi}{4} - 2\alpha \right) \cdot \cos 4\alpha$ ifodani soddalashtiring.

380) $\int_{-\frac{\pi}{2}}^{\pi} (\sin x + \cos x)^2 dx + \frac{\pi}{2}$ ni hisoblang.

381) $(x + 3)^{x^2-16} < 1$ tengsizlikning -3 dan katta eng kichik va eng katta yechimlari yig'indisini toping.

382) $A(-2; 3), B(2; 3)$ va $C(x; 3)$ bo'lib, $AB \perp BC$ bo'lsa, $x = ?$

383) $f(x; y) = 2x + 3y$ bo'lsa, $f(y; x) = ?$

384) $A \cup B = \{a; b; c; d\}$ va $B \cup C = \{a; b; c; d; 1; 2\}$ bo'lsa, $A \cup (B \cap C)$ ni toping.

385) Bir nechta turist sayohatga chiqmoqchi. Har birlari 25000 so'mdan berishsa, 140000 so'm yetmaydi. Agar 30000 so'mdan berilsa, 140000 so'm ortiqcha. Nechta sayohatchi bor?

386) Agar $3a + 2b + 2c = 0$ bo'lsa, $\frac{a}{b+c} + \frac{b}{3a+2c} + \frac{c}{3a+2b} = ?$

387) 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, ... ketma - ketlikning n - hadini topish formulasini ko'rsating.

$$\text{Javob: } a_n = \left[\frac{1 + \sqrt{8n-7}}{2} \right]$$

388) To'g'ri ABC burchakli uchburchakda $AB \perp AC, D \in AC, CD = 12, AB = 8$ bo'lsa, BC ni toping.

389) Raqamlari juft va takrorlanmaydigan 3 xonali sonlar nechta?

390) Teng yonli trapetsiyaning asoslari 5 va 13 ga teng. Tashqi chizilgan aylana markazi katta asosda yotadi. Trapetsiyaning yuzini toping.

391) To'g'ri parallelepipedning asosi tomonlari 3 va 4 ga, ular orasidagi burchak 60° ga teng. Parallelepipedning eng katta diagonali 7 ga teng bo'lsa, uning hajmini toping.

392) $ABCD$ rombning AB va AD tomonlarida M va N nuqtalar olinganki, CM va CN to'g'ri chiziqlar rombn 3 ta tengdosh shaklga ajratadi. Agar $BD = 27$ bo'lsa, MN kesma uzunligini toping.

$$\text{Javob: } \frac{2BD}{3} = 18$$

393) Agar $\operatorname{ctg} \alpha = 8$ bo'lsa, $\frac{1 + \operatorname{ctg} \left(\frac{13\pi}{2} + \alpha \right)}{1 - \sin(2\pi + \alpha)}$ ni toping.

394) $\vec{a}(-1; 0)$ va $\vec{b}(2; y)$ vektorlar berilgan. y ning qanday qiymatida ular orasidagi burchak 60° bo'ladi?

395) $ABCD$ trapetsiyada asoslari $AD = 30$ va $BC = 24$. Agar $AB = 6, \angle A = 45^\circ$ bo'lsa, COD uchburchak yuzini toping, bunda O - trapetsiyaning diagonallari kesishgan nuqta.

396) Sinfdan 27 ta bolani 3 tadan necha xil usulda guruhlansa bo'ladi?

397) $\operatorname{tg} 200^\circ - 4 \cos 250^\circ$ ni hisoblang.

398) $(x^2 - 0,01)(2x - 5) = (x - 2,5)(x + 0,1)^2$ tenglamaning ildizlari yig'indisini toping.

399) $|x^2 - 6|x|| = a$ tenglama a ning qanday qiymat(lar)ida 1 ta musbat va 1 ta manfiy yechimga ega bo'ladi?

Javob: $a > 9$

400) $y = \sqrt{-x^2 + 4x + 18} + 4$ egri chiziqdan (0; 4) nuqttagacha bo'lgan eng qisqa masofani toping.

401) $a = \sqrt{24} + \sqrt{26}$ va $b = 10$ sonlarni taqqoslang.

402) $|x^2 - 6|x|| = a$ tenglama a ning qanday qiymat(lar)ida 3 ta musbat va 3 ta manfiy yechimga ega bo'ladi?

Javob: $0 < a < 9$

403) $|5x - 28| \leq 3x$ tengsizlikning butun yechimlari nechta?

404) $ABCD$ rombning AB va AD tomonlarida M va N nuqtalar olinganki, CM va CN to'g'ri chiziqlar rombni 3 ta tengdosh shaklga ajratadi. Agar $BD = 12$ bo'lsa, MN kesma uzunligini toping.

405) $a_1 + a_2 + \dots + a_{20} = 100$ va $a_{21} + a_{22} + \dots + a_{40} = 160$ bo'lsa, arifmetik progressiyaning ayirmasini toping.

406) $\frac{1}{\sin 110^\circ} - 4 \sin 50^\circ$ ni hisoblang.

407) $\int_0^1 \frac{6}{\sqrt{3x+1}} dx$ integralni hisoblang.

408) $30 \cdot \log_{\frac{1}{7}} \left(\sqrt[5]{7} \cdot \frac{1}{49} \cdot 5^{\log_{\sqrt{5}} \sqrt[3]{49}} \right)$ ni hisoblang.

409) Agar $(x^2 + x) + (x^2 + 2x) + \dots + (x^2 + 19x) = 1425$ bo'lsa, $x + 2 = ?$

410) $\sqrt{5^x - 1} = 5^x - 3$ tenglamani yeching.

411) $\cos(2\alpha + \pi k) = \cos 2\alpha$ tenglik k ning qanday qiymatida o'rinli bo'ladi?

412) $(2a + b)^3 - (2a - b)^3$ ifodani ko'paytuvchilarga ajrating.

413) Asosi tomonlari $3\sqrt{5}$ bo'lgan va yon yoqlari kvadratlardan iborat bo'lgan muntazam

oltiburchakli prizmaning katta diagonalini toping.

414) $|3x^2 + 17x| \leq 2x$ tengsizlikni nechta butun son qanoatlantiradi?

415) Trapetsiyaning asoslari 6 va 34 ga, yon tomonlari esa 26 va $2\sqrt{29}$ ga teng bo'lgan trapetsiyaning balandligini toping.

416) $y = k_1x + b_1$ va $y = k_2x + b_2$ funksiyalarning grafiklari parallellik shartini ko'rsating.

417) Oddiy yilning sakkizinchi sanasida tug'ilish ehtimolini toping.

418) $\sqrt{2a^5} \cdot \sqrt{18a^2} = ?$

419) $\sqrt{25^{\frac{1}{\log_6 5}} + 36^{\frac{1}{\log_8 6}}}$ ni hisoblang.

420) Agar $a + b - c = 11$ va $ab - ac - bc = 9$ bo'lsa, $a^2 + b^2 + c^2 = ?$

421) $(4x^2 - 9)(x - 0,3) = (10x - 3)(x - 1,5)^2$ tenglamaning ildizlari yig'indisini toping.

422) $\frac{1}{\sin 200^\circ} + \frac{\text{tg } 60^\circ}{3 \cos 20^\circ}$ ni hisoblang.

423) Agar $\int (2 - x^2 f(x)) dx = x^2 - 3x + C$, $C = \text{const}$ bo'lsa, $f(x)$ funksiyani toping.

424) $y = \sin 3x \cos 3x$ funksiyaning eng kichik qiymatini toping.

425) $|x^2 + 17x| \leq 2x$ tengsizlikni nechta butun son qanoatlantiradi?

426) $\ln 4x \geq 2$ tengsizlikni yeching.

427) $\sqrt{52} + \sqrt{46}$ va 14 ni taqqoslang.

428) $\frac{8}{x^4} - \frac{8}{x} + 5 - \frac{8}{x^2} = 0$ bo'lsa, $x = ?$

429) $\int_5^8 \frac{6}{\sqrt{3x+1}} dx$ integralni hisoblang.

430) Teng yonli trapetsiyaning diagonalini 8 ga teng. U katta asos bilan 45° burchak tashkil etsa, trapetsiyaning yuzini toping.

431) $(x + 1)^{x^2 - 9} \leq 1$ tengsizlikni qanoatlantiruvchi eng katta butun sonni toping.

432) Toq raqamlardan foydalanib raqamlari takrorlanmaydigan nechta uch xonali son tuzish mumkin?

433) Agar hamma pul bersa 900 so'm yig'iladi. Agar 3 kishi bermasa qolgan kishilar 50 so'mdan qo'shishlariga to'g'ri keladi. Jami necha kishi bo'lgan?

Javob: 9

434) $0,5 \cdot \operatorname{tg} 20^\circ + 2 \sin 20^\circ$ ni hisoblang.

435) $\int_{-1}^3 \frac{1}{\sqrt{2x+3}} dx$ integralni hisoblang.

436) $x^2 + \frac{5}{x} = 6$ bo'lsa, $x^2 + x$ ni toping.

437) $x^2 + 3|x| = a$ tenglama a ning qanday qiymatida 3 ta har xil ildizga ega bo'ladi?

438) Agar $x^2 - 6x + 3 = 0$ bo'lsa, $x^2 + \frac{9}{x^2}$ ni toping.

439) $P(x) = (1 + 2x - x^2)^4$ ko'phadning x^7 qatnashgan hadining koeffitsiyentini toping.

440) Agar $f(x) = x^2 + 8x + 12$ bo'lsa, $f\left(f\left(f\left(f\left(f\left(f(x)\right)\right)\right)\right)\right) = 0$ tenglama nechta yechimga ega?

441) $A(3; 9)$ nuqtadan $(x - 13)^2 + (y + 15)^2 = 81$ egri chiziqqacha bo'lgan eng qisqa masofani toping.

442) $(3 \operatorname{tg}^2 x - 1)\sqrt{-\cos x} = 0$ tenglamani yeching.

443) $\log_a b = \frac{2}{3}$ bo'lsa, $\log_{\sqrt[3]{a^2} \cdot \sqrt[3]{b}} \left(\frac{a \cdot \sqrt[3]{a}}{b \cdot \sqrt[3]{b}}\right)$ ni toping.

444) Agar $f(x) = 5 \cos x + 6x$ bo'lsa, $f'(x) \geq f'\left(\frac{\pi}{2}\right)$ tengsizlikni yeching.

445) $3 + \sqrt{8}$ va $\sqrt{7} + \sqrt{10}$ sonlarni taqqoslang.

446) Trapetsiyaning asoslari 5 va 30 ga, yon tomonlari esa 15 va 20 ga teng bo'lsa, uning yuzini toping.

447) $\sqrt{34} + \sqrt{38}$ va 12 sonlarni taqqoslang.

448) $|\vec{a}| = 1, |\vec{b}| = 2, |\vec{c}| = 3, \vec{a} \perp \vec{b}, \vec{b} \perp \vec{c}, \vec{a} \wedge \vec{c} = 60^\circ$ bo'lsa, $|\vec{a} + \vec{b} - \vec{c}| = ?$

449) $y = \frac{1}{4} \sin \frac{x}{2} \cdot \cos \frac{2x}{3}$ funksiyaning eng kichik musbat davrini toping.

450) $|9x^2 - 6x - 1| = (x + a)^2$ tenglama a ning qanday qiymatida 3 ta yechimga ega bo'ladi?

451) $\frac{(a-3)^2}{a}$ ifoda natural qiymat qabul qiladigan a ning eng katta va eng kichik qiymatlari yig'indisini toping.

452) Radiuslari 24 va 30 bo'lgan o'zaro tashqi ravishda urinuvchi ikkita aylanaga umumiy tashqi urinmalar o'tkazilgan. Uchlari urinmalarining aylanalarga urinish nuqtalarida bo'lgan to'rtburchakka ichki chizilgan aylananing radiusini toping.

453) $\frac{(n+11)!}{(n+12)!}$ ni soddalashtiring.

454) ABC uchburchakka ichki chizilgan aylana markazidan AB tomonga parallel to'g'ri chiziq o'tkazilgan. Bu to'g'ri chiziq BC tomonni M nuqtada, AC tomonni N nuqtada kessa, $ABMN$ to'rtburchak perimetrini toping. Bunda $AB = 8, MN = 5$.

455) Odamning oddiy yildagi oyning 11 - sanasida tug'ilish ehtimolini toping.

456) $\arccos(\sin 3)$ ni hisoblang.

457) $\angle A = 120^\circ$ bo'lgan teng yonli ABC uchburchakda AC va AB tomonlari o'rtasidan hamda B, C uchlaridan o'tuvchi aylananing radiusi $\sqrt[4]{3}$ bo'lsa, uchburchakning yuzini toping.

458) $(2^2 + 4^2 + 6^2 + 8^2 + 10^2) - (1^2 + 3^2 + 5^2 + 7^2 + 9^2) + 5$ ni hisoblang.

459) $\int_0^8 (4\sqrt[3]{x} + 2x) dx$ integralni hisoblang.

460) Muntazam uchburchakli piramidaning asosining tomoni 4 ga, asos tekisligi va yon yoqlar orasidagi burchak 45° ga teng. Piramidaning hajmini toping.

461) $y = \log_{\frac{1}{4}}(2x^2 + 3x + 1)$ bo'lsa, y' ning aniqlanish sohasini toping.

462) Bank qo'yilgan pulga yiligi 10% pul beradi. 2 yildan keyin qo'yilgan pul necha foizga oshadi?

463) $\frac{\operatorname{tg} \alpha + \operatorname{ctg} \frac{3\beta}{2}}{\operatorname{tg} \frac{3\beta}{2} + \operatorname{ctg} \alpha} \cdot \frac{\operatorname{tg} \alpha}{\operatorname{tg} \frac{3\beta}{2}}$ ifodani soddalashtiring.

464) To'g'ri burchakli uchburchakning bir burchagi 59° ga teng. Gipotenuzaga tushirilgan balandlik va bissektrisa orasidagi burchakni toping.

465) $\angle A = 120^\circ$ bo'lgan teng yonli ABC uchburchakda AC va AB tomonlari o'rtasidan hamda B, C uchlaridan o'tuvchi aylananing radiusi $\sqrt{21}$ bo'lsa, uchburchakning yuzini toping.

466) $3^{\log_3^2 b} \cdot c^{\log_3 b} = b^2$ bo'lsa, $bc = ?$

467) u va v lar $x^2 - 6x + 3 = 0$ tenglama ildizlari bo'lsa, $\frac{vu^3 - uv^3}{v - u} = ?$

468) $y = \sqrt{x^2 + 4x + 18} + 4$ egri chiziqdan $(0; 4)$ nuqttagacha bo'lgan eng qisqa masofani toping.

469) 5 ta ruchka, 3 ta qalam va 4 ta flomaster bor. Ikkita xildagi predmetlardan tashkil topgan nechta to'plam tuzish mumkin?

470) Tengsizlikni yeching:

$$\frac{1}{2} \log_{x-1}(x^2 - 8x + 16) + \log_{4-x}(-x^2 + 5x - 4) > 3$$

471) $\frac{25^x - 5 \cdot 5^{x+1} + 26}{5^{x-1}} + \frac{25^x - 7 \cdot 5^x + 1}{5^{x-7}} \leq 2 \cdot 5^x - 24$ tengsizlikni nechta natural son qanoatlantiradi?

472) $\frac{3^2+1}{3^2-1} + \frac{5^2+1}{5^2-1} + \frac{7^2+1}{7^2-1} + \dots + \frac{19^2+1}{19^2-1}$ ni hisoblang.

473) Agar $\int (x^2 + 2)f(x) dx = 2x^3 - 5x^2 - 4x + C, C \in \mathbb{R}$ bo'lsa, $f(0) = ?$

474) Radiuslari 3, 5, 12 bo'lgan aylanalar tashqi ravishda urinadilar. Urinish nuqtalar orqali o'tuvchi aylananing radiusini toping.

475) Qirradi 6 ga teng bo'lgan kubning yuqori asosining markazi quyri asosining uchlari bilan

tutashtirildi. Hosil bo'lgan piramidaning to'la sirtini toping.

476) Doston aka 3 xil mevalik kompot tayyorlamoqchi. Agar Doston akaning mevalari 6 xil bo'lsa, necha turdagi kompot tayyorlashi mumkin?

477) ABC uchburchakda balandlilari $CD = 7$ va $AE = 6$. E nuqta BC tomonni $BE:EC = 3:4$ kabi nisbatda bo'ladi. BC tomonning uzunligini toping.

478) $|x + 2| + a|x - 4| = 6$ tenglama a ning qanday qiymatida yagona musbat yechimga ega?

479) $\log_2(\operatorname{arctg} x) > 1$ tengsizlikni yeching.

480) $f(x) = \begin{cases} 4x + 1, & x < 0 \\ -x^2 + 3, & x \geq 0 \end{cases}$ funksiya berilgan. $f'(f(-2)) = ?$

481) $y = 2 \ln(3x - 1)$ funksiyaning hosilasini toping.

482) Ushbu $x^2 \cdot 9^{\sqrt{x}} \leq 3^{2(\sqrt{x}+2)}$ tengsizlikni qanoatlantiruvchi butun sonlar nechta?

483) $\begin{cases} \sqrt{x} + \sqrt{y} = 5 \\ x + y + 4\sqrt{xy} = 27 \end{cases}$ bo'lsa, $x - y$ ni toping.

484) Hisoblang: $|5 - \sqrt{26}| - |5 + \sqrt{26}|$

485) Hisoblang: $|5 - \sqrt{19}| - |5 + \sqrt{19}|$

486) Geometrik progressiyada $b_1 = 6, S_n = \frac{242}{27}, q = \frac{1}{3}$ bo'lsa, $b_n = ?$

487) Ushbu $x^2 \cdot 9^{\sqrt{x}} \leq 3^{2(\sqrt{x}+1)}$ tengsizlikni qanoatlantiruvchi butun sonlar nechta?

488) $(x^2 - 181^2)^2 - 724x - 1 = 0$ tenglama nechta haqiqiy yechimga ega?

489) $\log_2(\operatorname{arcctg} x) > 4$ tengsizlikni yeching.

490) Radiuslari 1,5; 2; 10,5 bo'lgan aylanalar tashqi ravishda urinadilar. Uchala aylanaga urinuvchi aylananing radiusini toping.

491) 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5, ... ketma – ketlikdagi 1000 – sonni toping.

492) $\log_2(\arctg x) > 3$ tengsizlikni yeching.

493) $e^x - x - 2 \geq 0$ tengsizlikni yeching.

494) Qirradi 6 ga teng bo'lgan kubning yuqori asosining markazi quyi asosining uchlari bilan tutashirildi. Hosil bo'lgan piramidaning to'la sirtini toping.

495) 2018 burchakli to'g'ri prizmaning nechta qirradi bor?

496) $\begin{vmatrix} 2 & -3 & 5 \\ 1 & 12 & 0 \\ 5 & 8 & -2 \end{vmatrix}$ determinantni hisoblang.

497) $1^3 + 2^3 + 3^3 + \dots + 2018^3$ ni 9 ga bo'lgandagi qoldiqni toping.

498) Sport jamoasiga 45 ta mayka, 27 ta futbolka sotib olindi. Hamma bir xil kiyindi va hammaga buyumlar yetdi. Jamoada eng ko'pi bilan nechta sportchi bo'lishi mumkin?

499) Kesik konusning nechta simmetriya kesimi bor?

500) 14 ta futbolchidan 11 tadan qilib necha xil jamoa tuzish mumkin?