29.07.2019 yil.

1. 3 ta tengdosh prizma balandliklari nisbati mos ravishda 4:9:1 kabi nisbatda bo'lsa, prizmalar asoslarining yuzalari nisbatini toping.

2. $\frac{35}{17}-\frac{77}{19}+\frac{70}{23}$ ifodaning qiymati quyidagi oraliqlarning qaysi biriga tegishli?

3. $\frac{27}{13}+\frac{77}{19}-\frac{93}{23}$ ifodaning qiymati quyidagi oraliqlarning qaysi biriga tegishli?

4. $\frac{40}{13}+\frac{77}{19}-\frac{93}{23}$ ifodaning qiymati quyidagi oraliqlarning qaysi biriga tegishli?

5. Hisoblang: $\frac{4\cdot(tg435°-tg555°)\cdot sin^2 70°\cdot sin^2 50°\cdot sin^2 10°}{sin60°}=?$

6. Hisoblang: $\frac{2\cdot(tg615°-tg375°)\cdot sin^2 70°\cdot sin^2 50°\cdot sin^2 10°}{sin330°}=?$

7. Hisoblang: $\frac{4\cdot(tg435°-tg375°)\cdot sin^2 70°\cdot sin^2 50°\cdot sin^2 10°}{sin120°}=?$

8. $3\cdot 17^5$ sonini 4 ga bo'lgandagi qoldiqni toping.

9. $7\cdot 17^5$ sonini 8 ga bo'lgandagi qoldiqni toping.

10. Ishchi bir kuni ish normasining $\frac{1}{8}$ qismini bajardi. 2 – kuni 1 – kunda bajarilgan ishning $\frac{1}{8}$ qismicha ko'p ish bajardi. Ishchi shu ikki kunda ish normasining qancha qismini bajargan?

11. Ishchi bir kuni ish normasining $\frac{1}{4}$ qismini bajardi. 2 – kuni 1 – kunda bajarilgan ishning $\frac{1}{6}$ qismicha ko'p ish bajardi. Ishchi shu ikki kunda ish normasining qancha qismini bajargan?

12. $(\sqrt[4]{2})^{4x+3}=(\sqrt{2})^{-\frac{2x}{3}}$ tenglamani yeching.

13. $(\sqrt[4]{2})^{4x-2}=(\sqrt{2})^{-\frac{2x}{3}}$ tenglamani yeching.

14. $(\sqrt[4]{2})^{4x+7}=(\sqrt{2})^{-\frac{2x}{3}}$ tenglamani yeching.

15. $\int x\cdot sin2xdx$ integralni hisoblang.

16. $\int x\cdot sin4xdx$ integralni hisoblang.

17. $\int x\cdot cosxdx$ integralni hisoblang.

18. $\int x\cdot cos2xdx$ integralni hisoblang.

19. Ko'paytuvchilarga ajrating: $(a+b)^2-c^2$

20. Ko'paytuvchilarga ajrating: $(a+b)^2-b^2$

21. $|x^2+9x|=x^2+9x-20$ tenglamaning haqiqiy ildizlari yig'indisini toping.

22. $|x^2-11x|=x^2-11x+48$ tenglamaning haqiqiy ildizlari yig'indisini toping.

23. $|x^2+10x|=x^2+10x+18$ tenglamaning haqiqiy ildizlari yig'indisini toping.

24. Hisoblang: $\sqrt{12-2\sqrt{11}}-\sqrt{11}-1$

25. Hisoblang: $\sqrt{16-2\sqrt{15}}-\sqrt{15}+4$

26. Hisoblang: $\sqrt{8-2\sqrt{7}}-\sqrt{7}-2$

27. $\frac{x^3}{x-2}\le\frac{16x}{x-2}$ tengsizlikning butun yechimlari sonini toping.

28. Tengsizlikni yeching: $\frac{x^3}{x-2}\le\frac{9x}{x-2}$

29. Hisoblang: $2{,}6\cdot 7{,}7+2{,}6\cdot 3{,}8+2{,}4\cdot 16{,}2-4{,}7\cdot 2{,}4$

30. Hisoblang: $3{,}6\cdot 4{,}8+5{,}6\cdot 3{,}6+4{,}8\cdot 9{,}2-4{,}8\cdot 5{,}6$

31. Hisoblang: $6{,}4\cdot 11{,}1-6{,}4\cdot 7{,}6+3{,}5\cdot 6{,}7+4{,}9\cdot 3{,}5$

32. Sin4x = sin3x tenglamaning eng kichik musbat yechimini toping.

33. Tenglamani yeching: sin5x = sin3x

34. Tenglamani yeching: sin5x = sin6x

35. Tenglamani yeching: sinx = sin3x

36. Tenglamani yeching: sin4x = sin3x

37. Tenglamaning eng kichik ildizini toping: sin2x = sin3x

38. Hisoblang: $\frac{(x-1)!}{(x-4)!}+\frac{(x+1)!}{(x-2)!}=?$

39. Tengsizlikni yeching: $100x>\sqrt{10^{3lgx}}$

40. Tenglamani yeching: $(2+\sqrt{3})^{x^2}+(2-\sqrt{3})^{x^2}=4$

41. Tekisilikda Ikki parallel to'g'ri chiziqlar berilgan. Ularning birida 5 ta va ikkinchisida 4 ta nuqta olingan. Uchi shu nuqtalarda bo'lgan jami nechta uchburchak mavjud?

42. Tekisilikda Ikki parallel to'g'ri chiziqlar berilgan. Ularning birida 4 ta va ikkinchisida 3 ta nuqta olingan. Uchi shu nuqtalarda bo'lgan jami nechta uchburchak mavjud?

43. Tekisilikda Ikki parallel to'g'ri chiziqlar berilgan. Ularning birida 2 ta va ikkinchisida 6 ta nuqta olingan. Uchi shu nuqtalarda bo'lgan jami nechta uchburchak mavjud?

44. Tenglamani yeching: $2x^3 - 6x + 5 = 0$

45. f(x) = $\log_2 x$ funksiyaning (1;0) va (4;2) nuqtalarda o'tuvchi to'g'ri chiziqqa parallel bo'lgan urinma tenglamasining burchak koeffitsiyentini toping.

46. f(x) = $\log_3 x$ funksiyaning (1;0) va (3;1) nuqtalarda o'tuvchi to'g'ri chiziqqa parallel bo'lgan urinma tenglamasining burchak koeffitsiyentini toping.

47. Tengsizlikni yeching: $|x^2 - 3x + 4| \le |x^2 - 3x|$

48. Agar $f(x) = \log_2 x^3 + 3$ bo'lsa, $f(4) + f(x) = f(\frac{1}{x})$ tenglamaning ildizlarini toping.

49. Agar $f(x) = 2 + \log_3 x^2$ bo'lsa, $f(9) = f(x) - f(\frac{1}{x})$ tenglamaning ildizlarini toping.

50. $\sqrt{\frac{mnp+4}{m} + \sqrt{\frac{16np}{m}}} : (2\sqrt{mnp} - 4)$ ifodaning qiymatini m=25, n=0,4 va p=49 bo'lgandagi qiymatini toping.

51. $\sqrt{\frac{mnp+4}{m} + \sqrt{\frac{16np}{m}}} : (\sqrt{mnp} - 2)$ ifodaning qiymatini m=64, n=0,9 va p=16 bo'lgandagi qiymatini toping.

52. $\sqrt{\frac{mnp+4}{m} + 4\sqrt{\frac{np}{m}}} : (2\sqrt{mnp})$ ifodaning qiymatini m=0,09; n=0,16 va p=0,12 bo'lgandagi qiymatini toping.

53. $\sqrt{\frac{mnp+4}{m} + 4\sqrt{\frac{np}{m}}} : (2 + \sqrt{mnp})$ ifodaning qiymatini m=0,09; n=0,16 va p=0,12 bo'lgandagi qiymatini toping.

54. ABCD parallelogramda, D uchidan AB tomonga shunday DE kesma o'tkazilganki, bu kesma parallelogram yuzini 5:12 kabi nisbatda bo'lsa, E nuqta AB tomonni A uchidan boshlab qanday nisbatda bo'ladi?

55. $\vec{a}(x;2) va \vec{b}(-5;y)$ vektorlar kolliniar vektorlar bo'lsa, u holda 2xy + 15 ifodaning qiymatini toping.

56. $7x^3 - 14x - 9x^2 + a + 2 = 0$ tenglamaning 3 ta ildizidan 2 tasi qarama-qarshi sonlar bo'lsa, $a^2 + 3$ ning qiymatini toping.

57. To'g'ri burchakli trapetsiyaning yon tomonlari 6 va 12 ga teng. Agar trapetsiyaning kichik dioganali katta yon tomoniga teng bo'lsa, trapetsiyaning o'rta chizig'ini toping.

58. $a^2 + b^2 + c^2 + (a + b + c)^2 = 8$ bo'lsa, (a+b)(b+c)(a+c) ning eng katta qiymatini toping.

59. a+b+c=3 va ab+ac+bc=2 bo'lsa, u holda $a^3 + b^3 + c^3 - 3abc$ ning qiymatini toping.

60. Hisoblang: ((x-3)!-(3-x)!)·x!

61. $x^2 - 2020x + 2019 < 0$ tengsizlikning butun yechimlari yig'indisini toping.

62. $x^2 + 2020x + 2019 \ge 0$ tengsizlikning eng katta butun manfiy va eng kichik mutun musbat yechimlari yig'indisini toping.

63. $x^2 \cdot (a^2 + b^2 + 9) + 2(a + b + 3)x + 3 = 0$ kvadrat tenglama haqiqiy ildizga ega bo'lsa, a + b ning qiymatini toping.

64. $x^2 + ax + 5 = 0 \ va \ x^2 - 5x - a = 0$ kvadrat tenglamalar umumiy ildizga ega bo'lsa, a ning qiymatini toping.

65. 0 < a < 1 bo'lsa, y = $\log_a|x - 5|$ funksiyaning grafigi qaysi choraklardan o'tadi.

66. a > 1 bo'lsa, y = $\log_a|x + 5|$ funksiyaning grafigi qaysi choraklardan o'tadi.

67. $y = \frac{\sqrt{x^2+x-6}}{x^2-4}$ funksiyaning aniqlanish sohasini toping.

68. $y = \sqrt{\frac{\sqrt{17-15x-2x^2}}{x+3}}$ funksiyaning aniqlanish sohasini toping.

69. $y = arcsin3^x$ funksiyaning aniqlanish sohasini toping.

70. $y = \sqrt{(sinx + cosx)^2 - 1}$ funksiyaning aniqlanish sohasini toping.

71. $y = \frac{\log_2(x^2+1)}{sin^2x - sinx + 0{,}25}$ funksiyaning aniqlanish sohasini toping.

72. $y = \sqrt{lg\frac{3-x}{x}}$ funksiyaning aniqlanish sohasini toping.

73. $y = \arcsin\left(\frac{x-3}{2}\right) - \lg(4 - x)$ funksiyaning aniqlanish sohasini toping.

74. $y = \log_{100x}\frac{2lgx+2}{-x}$ funksiyaning aniqlanish sohasini toping.

75. $f(x) = x^2 - ax + 3 \ va \ g(x) = 2x - 1$ bo'lsa, f(g(x))=?

76. $y = x^2 + \frac{1}{x}$ funksiyaning $x = \frac{1}{2} \ nuqtadagi \ \Delta x = \frac{1}{2}$ ortirmasini toping.

77. $y = x^2 - \frac{1}{x}$ funksiyaning $x = -\frac{1}{2} \ nuqtadagi \ \Delta x = 0{,}2$ ortirmasini toping.

78. $\overline{367x75}$ soni 75 ga qoldiqsiz bo'linsa, x ni toping.

79. Hisoblang: $arcctg\big(tg(-37°)\big)$ =?

80. Hisoblang: $arctg\sqrt{2} + arctg\frac{1}{\sqrt{2}} = ?$

81. Hisoblang: $\sin(2arcsin\frac{3}{5}) = ?$

82. Hisoblang: $arc\sin(sin\frac{6\pi}{7}) = ?$

83. Hisoblang: $arc\text{tg}(tg\frac{6\pi}{7}) = ?$

84. Hisoblang: $arc\cos(cos\frac{6\pi}{7}) = ?$

85. $\sqrt{\frac{1+sin\alpha}{1-sin\alpha}} - \sqrt{\frac{1-sin\alpha}{1+sin\alpha}}$ ni soddalashtiring $(\frac{\pi}{2} < \alpha < \frac{3\pi}{2})$

86. $\sqrt{\frac{1+cos\alpha}{1-cos\alpha}} - \sqrt{\frac{1-cos\alpha}{1+cos\alpha}}$ ni soddalashtiring $(\frac{\pi}{2} < \alpha < \frac{3\pi}{2})$

87. $\sqrt{(x-3)^2+(y+4)^2} + \sqrt{x^2+y^2}$ ifodaning eng kichik qiymatini toping.

88. Slindr o'q kesimining dioganali 15 ga, balandligi 12 ga teng bo'lsa, asos radiusini toping.

89. ABCD to'g'ri to'rtburchak A burchagining bisektrissasi BC tomonni P nuqtada kesib o'tadi. Agar BP=2 va PC=2,5 bo'lsa, to'g'ri to'rtburchsk yuzini toping.

90. ABCD to'g'ri to'rtburchak A burchagining bisektrissasi BC tomonni P nuqtada kesib o'tadi. Agar BP=6 va PC=7,5 bo'lsa, to'g'ri to'rtburchsk yuzini toping.

91. $y = ln\frac{5x-12}{4x-15}$ funksiyaning x_0=-3 nuqtasida o'tkazilgan urinma va koordinata o'qlari hosil qilgan uchburchak yuzasini toping.

92. $y = 3x^2 - 6x + 7$ funksiyaning koordinata boshiga nisbatan simmetrigini toping.

93. $y = kx^2 - 6$ funksiya A(-3;12) nuqtadan o'tsa, k ning qiymatini toping.

94. Tenglamani yeching:

$$\sqrt[3]{(x+3)^2} - 2\sqrt[3]{(x-2)^2} + \sqrt[3]{x^2+2x-3} = 0$$

95. Tenglamani yeching:

$$\sqrt[3]{(x+2)^2} - 2\sqrt[3]{(x-3)^2} + \sqrt[3]{x^2-x-6} = 0$$

96. Tenglamani yeching:

$$\sqrt[3]{(x+2)^2} - 2\sqrt[3]{(x-1)^2} + \sqrt[3]{x^2+x-2} = 0$$

97. Geometrik progressiyada $b_6 - b_3 = 112$ va $b_5 - b_2 = 56$ bo'lsa, $b_1 + b_4 = ?$

98. Geometrik progressiyada $b_6 - b_3 = 84$ va $b_5 - b_2 = 42$ bo'lsa, $b_1 + b_4 = ?$

99. ABC uchburchakda A burchakning ichki burchagi tashqi burchagidan 50° ga kichik bo'lsa, BD va CE bisektrissalar orasidagi o'tmas burchakni toping.

100. Agar $a = \frac{\sqrt{2}(1+3\sqrt{2})}{4}$ bo'lsa, $\frac{2}{1-\frac{2}{2+\frac{1}{a-2}}}$ ifodaning qiymatini toping.

101. $A = \{(x;y)|x^2+y^2 = 4;\ x,y \in R\}$

$B = \{(x;y)|x+y = 2;\ x,y \in R\}$ bo'lsa, $A \cap B = ?$

102. $A = \{(x;y)|x^2+y^2 = 4;\ x,y \in R\}$

$B = \{(x;y)|x+y = -2;\ x,y \in R\}$ bo'lsa, $A \cap B = ?$

103. A={1;4;5;7;8}, B={1;2;3;5;8;9;10;11;12} va C={a;b;c;d;f} bo'lsa, n((B/A)UC) ni aniqlang.

104. $|7-2x| = |5-3x| + |x+2|$ tenglamaning butun yechimalari nechta?

105. $a_1 = 2\ va\ a_n = 2^n \cdot a_{n-1} - 2$ n ta hadi ko'rinishida berilgan ketma-ketlikning 4-hadini toping.

106. Muntazam uchburchakli piramidaga konus ichki chizilgan. Piramidaning yon yoqlari bilan asosi 60° li burchak hosil qiladi. Agar piramidaning asosiga ichki chizilgan aylananing radiusi 16 ga teng bo'lsa, konusning yon sirtini toping.

107. DAVOMI BOR.