1. Namangan davlat universiteti 60410500 – Moliya va moliyaviy texnologiyalar (o‘zbek) ta’lim yo‘nalishi kunduzgi ta’lim shakli 1-bosqich talabalari uchun “Amaliy matematika” fanidan 2024/2025 o‘quv yili bahorgi semestrida o’tkaziladigan yakuniy nazorat uchun auditoriyada o‘tilgan mavzular (ma’ruza, amaliy) yuzasidan nazorat savollar banki

1. Funksiya hosilasi.
2. Hosilani hisoblash qoidalari.
3. Funksiya differensiali.
4. Differensial hisobning asosiy xossalari.
5. Boshlang‘ich funksiya va aniqmas integral tushunchasi.
6. Integralning sodda xossalari va qoidalari.
7. Aniqmas integral jadvali.
8. Aniqmas integralda o‘zgaruvchini almashtirib integrallash.
9. Aniqmas integralni bo‘laklab integrallash.
10. Kasr-ratsional funksiyalarni integrallash.
11. Trigonometrik funksiyalarni integrallash.
12. Ba’zi irratsional funksiyalarni integrallash.
13. Aniq integral tushunchasi.
14. Uning asosiy xossalari.
15. Nyuton–Leybnits formulasi.
16. Aniq integralda o‘zgaruvchini almashtirib integrallash.
17. Aniq integralni bo‘laklab integrallash.
18. Sonli qatorlar tushunchasi.
19. Qatorning yaqinlashishi va uzoqlashishi.
20. Sonli qatorning xossalari.
21. Musbat hadli qatorlar.
22. Musbat hadli qatorning yaqinlashish alomatlari.
23. Funksional qator tushunchasi.
24. Funksional qatorning yaqinlashuvchanligi.
25. Differensial tenglamalar.
26. O‘zgaruvchilari ajraladigan differensial tenglamalar.
27. Bir jinsli birinchi tartibli differensial tenglamalar.
28. Chiziqli birinchi tartibli differensial tenglamalar.
29. Chiziqli birinchi tartibli Bernulli tenglamalari.
30. Chiziqli to‘liq differensialli birinchi tartibli differensial tenglamalar.
31. Hodisalar va ularning ehtimollari.
32. Hodisalarning erkliligi.
33. Hodisalarning eng sodda formulalari.
34. Tasodifiy miqdorlar.
35. Miqdorlarning taqsimot qonunlari.
36. Umumiy ko‘rinishdagi tasodifiy miqdorlar.
37. Taqsimot funksiya.
38. Matematik statistika elementlari.
39. $y(x) = 3x^2 - 5x + 4$
40. $y(x) = 2x^3 - 5x^2 - 11x - 8$

41. $y(x) = \frac{4x^2-1}{x^2+1}$
42. $y(x) = \frac{5x^2-3}{x^2+1}$
43. $y(x) = \frac{5x-7}{6x+1}$
44. $y(x) = 11x^2 - x + 8$
45. $y(x) = \frac{12x+5}{13x-1}$
46. $y(x) = x^2 + 8x - 14$
47. $y(x) = x^3 - 3x^2 + 7$
48. $y(x) = \frac{3x^2+1}{x^2+8}$
49. $y(x) = sinx$
50. $y(x) = cosx$
51. $y(x) = tgx$
52. $y(x) = ctgx$
53. $y(x) = lnx$
54. $y(x) = log_a^x$
55. $y(x) = a^x$
56. $y(x) = \frac{1}{x}$
57. $y(x) = arcsinx$
58. $y(x) = arccosx$
59. $y(x) = arctgx$
60. $y(x) = arcctgx$
61. $y(x) = shx$
62. $y(x) = chx$
63. $y(x) = thx$
64. $y(x) = cthx$
65. $y(x) = e^x$
66. $y(x) = \sqrt{3x+4}$
67. $y(x) = \sqrt{x-2} + \sqrt[3]{x+5}$
68. $y(x) = \frac{2x+1}{x+3}$
69. $y(x) = \sin(3x+4) + x$
70. $y(x) = \cos(5x-2) - 4x$
71. $y(x) = tg(3x-8) + 11x - 1$
72. $y(x) = ctg(7x+1) + 6x - 11$
73. $y(x) = \ln(6x-5) + 5x$
74. $y(x) = log_4^{x+5}$
75. $y(x) = 2^{x+3} + 7x$
76. $y(x) = arcsin\frac{x}{2} - 2x + 3$
77. $y(x) = arccos3x + 3x - 1$
78. $y(x) = arctg\frac{x}{3} - 4x$
79. $y(x) = arcctg5x + 6x$
80. $y(x) = sh2x + 9x - 12$
81. $y(x) = ch5x - 3x + 2$

82. $y(x) = e^{2x} + 3x - 1$
83. $y(x) = \sqrt{7x+9} - 3x$
84. $y(x) = \frac{7x-1}{x^2+2}$
85. $y(x) = x^3 - 5x + 14$
86. $y(x) = \frac{7x+4}{9x-2}$
87. $y(x) = \frac{3x^2-1}{5x^2+4}$
88. $y(x) = \frac{5x+12}{7x-3}$
89. $\int x^2(5-x)^4 dx$
90. $\int \left(\frac{1-x}{x}\right)^2 dx$
91. $\int \frac{x+1}{\sqrt{x}} dx$
92. $\int \frac{(1-x)^3}{x\sqrt[3]{x}} dx$
93. $\int \frac{(\sqrt{2x}-\sqrt[3]{3x})^2}{x} dx$
94. $\int \frac{x^2}{1+x^2} dx$
95. $\int \frac{x^2+3}{x^2-1} dx$
96. $\int \frac{\sqrt{x^2+1}-\sqrt{x^2-1}}{\sqrt{x^4-1}} dx$
97. $\int \frac{2^{x+1}-5^{x-1}}{10^x} dx$
98. $\int (1 + sinx + cosx)\, dx$
99. $\int ctg^2 x\, dx$
100. $\int (ashx + bchx)\, dx$
101. $\int cth^2 x\, dx$
102. $\int \frac{1}{x+a} dx$
103. $\int \frac{1}{\sqrt{(5x-2)^5}} dx$
104. $\int \frac{1}{2+3x^2} dx$
105. $\int \frac{1}{\sqrt{2-3x^2}} dx$
106. $\int (e^{-x} + e^{-2x})\, dx$
107. $\int \frac{1}{1-cosx} dx$
108. $\int [sh(2x+1) + ch(2x-1)]\, dx$
109. $\int \frac{1}{sh^2\frac{x}{2}} dx$
110. $\int x^2\sqrt[3]{1+x^3}\, dx$
111. $\int \frac{x}{(1+x^2)^2} dx$
112. $\int \frac{x^3}{x^8-2} dx$
113. $\int sin\frac{1}{x} * \frac{1}{x^2} dx$
114. $\int \frac{1}{x\sqrt{x^2-1}} dx$

115. $\int \frac{1}{e^x+e^{-x}} dx$

116. $\int \frac{ln^2x}{x} dx$

117. $\int \frac{1}{sinx} dx$

118. $\int \frac{arctgx}{1+x^2} dx$

119. $\int lnx\, dx$

120. $\int \left(\frac{lnx}{x}\right)^2 dx$

2. Namangan davlat universiteti 60410500 – Moliya va moliyaviy texnologiyalar (o‘zbek) ta’lim yo‘nalishi kunduzgi ta’lim shakli 1-bosqich talabalari uchun “Amaliy matematika” fanidan 2024/2025 o‘quv yili bahorgi semestrida o’tkaziladigan yakuniy nazorat uchun mustaqil ta’lim mavzulari yuzasidan nazorat savollar banki

1. Natural sonlar. Butun sonlar.
2. Foiz . Proporsiya.
3. Chiziqli va kvadrat tenglamalar.
4. Arifmetik progressiya.
5. Geometrik progressiya
6. Tengsizliklar.
7. Irratsional tenglama va tengsizliklar.
8. Ko‘rsatkichli tenglama va tengsizliklar
9. Logarifm va uning asosiy xossalari.
10. Logarifmik tenglama va tengsizliklar
11. Trigonometriya. Asosiy trigonometrik ayniyatlar.
12. Qo‘shish formulalari. Ikkilangan va uchlangan burchaklar formulalari
13. Koordinatalar sistemasi.
14. Chiziqlarning parametrik tenglamasi.
15. Ikkinchi tartibli chiziqlarning umumiy tenglamasi
16. Kompleks sonning ko‘rsatkichli formasi. Eyler formulasi.
17. Vektorlarning chiziqli bog‘liqligi. Affin koordinatalari haqida tushuncha.
18. Funksiya va uning berilish usullari.
19. Karrali,egri chiziqli va sirt integrallari.
20. Aylanma sirtlar va ularning tenglamalari.
21. Kanonik tenglama bilan berilgan ikkinchi tartibli sirtlar.
22. Differensial hisobning asosiy teoremalari
23. Ba’zi transendent funksiyalarni integrallash.
24. Ikki karrali integrallar va ularni hisoblash.
25. Birinchi va ikkinchi tur egri chiziqli integrallar.
26. Diskret tasodifiy miqdor ehtimolining taqsimot qonuni
27. Diskret tasodifiy miqdorning dispersiyasi va uning xossalari.
28. Korrelyatsiya koeffisiyenti. Regressiya tenglamalari.
29. Ehtimolni klassik, statistik ta'riflari va ularni xossalari.
30. Ehtimollarni qo‘shish va ko‘paytirish teoremalari. Tajribalar ketma-ketligi.
31. Diskret tasodifiy miqdorning sonli xarakteristikalari va ularni xossalari.

32. Uzluksiz tasodifiy miqdor va uning sonli xarakteristikalari.
33. Normal taqsimot va uning tadbiqi.
34. Tanlanma va uning turlari: bosh va tanlanma to‘plamlar, reprezentativ tanlanma.
35. Tanlanmaning statistik taqsimoti va uni geometrik izohlash..
36. Taqsimot parametrlarini statistik baholari. Statistik gipotezalarni tekshirish
37. Tasodifiy miqdorlar orasidagi bog‘lanishlar: funksional va korrelyatsion bog‘lanishlar.
38. Tanlanma korrelyatsiya koeffitsienti va uning xossalari.
39. $\int xe^{-x}\,dx$
40. $\int x^3e^{-x^2}\,dx$
41. $\int x^2 sin2x\,dx$
42. $\int x^3 ch3x\,dx$
43. $\int arcsinx\,dx$
44. $\int x^2 arccosx\,dx$
45. $\int xsin^2x\,dx$
46. $\int cos(lnx)\,dx$
47. $\int (e^x - cosx)^2\,dx$
48. $\int \frac{x}{(x+1)(x+2)(x+3)}\,dx$
49. $\int \frac{x^3+1}{x^3-5x^2+6x}\,dx$
50. $\int \frac{x}{x^3-3x+2}\,dx$
51. $\int \frac{1}{(x+1)(x^2+1)}\,dx$
52. $\int \frac{x}{(x-1)^2(x^2+2x+2)}\,dx$
53. $\int \frac{1}{x^3+1}\,dx$
54. $\int \frac{1}{x^4-1}\,dx$
55. $\int \frac{1}{x^4+x^2+1}\,dx$
56. $\int \frac{1}{(1+x)(1+x^2)(1+x^3)}\,dx$
57. $\int cos^5x\,dx$
58. $\int cos^6x\,dx$
59. $\int sin^4x * cos^5x\,dx$
60. $\int \frac{sin^3x}{cos^4x}\,dx$
61. $\int \frac{1}{sin^3x}\,dx$
62. $\int \frac{1}{sinx*cos^4x}\,dx$
63. $\int ctg^6x\,dx$
64. $\int \frac{1}{\sqrt{tgx}}\,dx$
65. $\int \frac{1}{2sinx-cosx+5}\,dx$
66. $\int \frac{sin^2x}{sinx+2cosx}\,dx$
67. $\int \frac{sin^2x}{1+sin^2x}\,dx$
68. $\int \frac{1}{sin^4x+cos^4x}\,dx$

69. $\int \frac{sin^2x-cos^2x}{sin^4x+cos^4x}dx$

70. $\int \frac{1}{sin^6x+cos^6x}dx$

71. $\int_0^{\pi} sinx\,dx$

72. $\int_0^{ln2} xe^{-x}\,dx$

73. $\int_0^{2\pi} x^2 cosx\,dx$

74. $\int_0^1 arccosx\,dx$

75. $\int_{-1}^1 \frac{x}{\sqrt{5-4x}}dx$

76. $\int_0^{0,75} \frac{1}{(x+1)\sqrt{x^2+1}}dx$

77. $\int_0^1 x^2(5-x)^4\,dx$

78. $\int_1^e \left(\frac{1-x}{x}\right)^2 dx$

79. $\int_4^9 \frac{x+1}{\sqrt{x}}dx$

80. $\int_1^8 \frac{(1-x)^3}{x\sqrt[3]{x}}dx$

81. $\int_0^{1/3} \frac{(\sqrt{2x}-\sqrt[3]{3x})^2}{x}dx$

82. $\int_0^1 \frac{x^2}{1+x^2}dx$

83. $\int_2^3 \frac{x^2+3}{x^2-1}dx$

84. $\int_1^2 \frac{\sqrt{x^2+1}-\sqrt{x^2-1}}{\sqrt{x^4-1}}dx$

85. $\int_0^1 \frac{2^{x+1}-5^{x-1}}{10^x}dx$

86. $\int_0^{\pi/2} (1+sinx+cosx)\,dx$

87. $\int_{\pi/4}^{\pi/2} ctg^2x\,dx$

88. $\int_0^1 (ashx+bchx)\,dx$

89. $\int_0^1 \frac{1}{x+a}dx$

90. $\int_1^2 \frac{1}{\sqrt{(5x-2)^5}}dx$

91. $\int_0^{\sqrt{2/3}} \frac{1}{2+3x^2}dx$

92. $\int_0^{\sqrt{2/3}} \frac{1}{\sqrt{2-3x^2}}dx$

93. $\int_0^1 (e^{-x}+e^{-2x})\,dx$

94. $\int_{\pi/2}^{\pi} \frac{1}{1-cosx}dx$

95. $\int_0^1 x^2\sqrt[3]{1+x^3}\,dx$

96. $\int_0^1 \frac{x}{(1+x^2)^2}dx$

97. $\int_2^3 \frac{x^3}{x^8-2}dx$

98. $\int_{2/\pi}^{4/\pi} sin\frac{1}{x} * \frac{1}{x^2}dx$

99. $\int_1^2 \frac{1}{x\sqrt{x^2-1}}dx$

100. $\int_0^1 \frac{1}{e^x+e^{-x}}dx$

101. $\int_1^e \frac{ln^2x}{x}dx$

102. $\int_{\pi/2}^{2\pi/3} \frac{1}{sinx}dx$

103. $\int_0^1 \frac{arctgx}{1+x^2}dx$

104. $\int_1^e lnx\,dx$

105. $\int_1^e \left(\frac{lnx}{x}\right)^2 dx$

106. $\int_0^1 xe^{-x}\,dx$

107. $\int_0^1 x^3e^{-x^2}\,dx$

108. $\int_0^{\pi/4} x^2sin2x\,dx$

109. $\int_0^1 arcsinx\,dx$

110. $\int_0^1 x^2arccosx\,dx$

111. $\int_0^{\pi/4} xsin^2x\,dx$

112. $\int_0^1 \frac{x}{(x+1)(x+2)(x+3)}dx$

113. $\int_4^5 \frac{x^3+1}{x^3-5x^2+6x}dx$

114. $\int_2^3 \frac{x}{x^3-3x+2}dx$

115. $\int_0^{\pi/2} cos^5x\,dx$

116. $\int_0^{\pi/4} cos^6x\;dx$

117. $\int_0^{\pi/2} sin^4x * cos^5x\;dx$

118. $\int_0^{\pi/6} \frac{sin^3x}{cos^4x}dx$

119. $\int_{\pi/4}^{\pi/2} ctg^6x\;dx$

120. $\int_0^{\pi/4} \frac{sin^2x-cos^2x}{sin^4x+cos^4x}\,dx$

Fan bo'yicha yakuniy nazorat savollari Matematika kafedrasining 2025 yil "28" fevral dagi 7 - son yig'ilishida muhokama etilgan va ma'qullangan.

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