Masofaviy ta'lim.Kompyuter ilimlari.
Matematik analiz
2-semestr Y.N savollari (o'zb)

2. Integral hisobning sodda qoidalari.
3. Aniqmas integrallar jadvali. Integrallash usullari.
4. Ratsional funksiyalarni integrallash.
5. Trigonometrik va ba'zi irratsional funksiyalarni integrallash.
6. Aniq integral. Aniq integral (Riman integrali) ta'riflari.
7. Aniq integralning mavjudligi va integrallanuvchi funksiyalar sinfi.
8. Integralning xossalari va uni hisoblash.
9. Integralni taqribiy hisoblash formulalari.
10. Aniq integralning geometriyaga, fizikaga, mexanikaga tadbiqlari.
11. Xosmas integrallar. Birinchi tur xosmas integrallar va ularning yaqinlashishi.

u
ç
v
i
16. Xosmas integrallarni hisoblash. Ikkinchi tur xosmas integrallar va ularning
b yaqinlashuvchiligi.
i $\mathbf{R}^n$
b $\mathbf{R}^n$ fazo va uning muhim to'plamlari.
19. Ko'p o'zgaruvchili funksiya va uning limiti.
20. g Ko'p o'zgaruvchili funksiyaning uzluksizligi.
i
22. Ko'p o'zgaruvchili funksiyalarning tekis uzluksizligi. Kantor teoremasi.
23. Ko'p o'zgaruvchili funksiyaning xususiy hosilalari.
24. Ko'p o'zgaruvchili funksiyaning differensiyallanuvchiligi.
25. Yo'nalish bo'yicha hosila.Murakkab funksiya hosilasi.

$\int f(x)dx = 2\cos x + 7\sin x + C$ $f(x)-?$

27. $\int f(x)dx = 2\sin x + 3\cos x + C$ $f(x)-?$

28. $\int f(x)dx = \sin x + \cos x + C$ $f(x)-?$

29. $\int f(x)dx = 5\sin x + 7\cos x + C$ $f(x)-?$

30. $\int f(x)dx = 2\sin x + 4\cos x + C$ $f(x)-?$

31. $\int f(x)dx = 6\sin x + 3\cos x + C$ $f(x)-?$

32. $\int f(x)dx = -\sin x + 23\cos x + C$ $f(x)-?$

33. $\int f(x)dx = -\sin x + 3x + C \quad f(x) - ?$

34. $\int f(x)dx = 6x - 3\cos x + C \quad f(x) - ?$

35. $\int f(x)dx = 9x + \cos 9x + C \quad f(x) - ?$

36. $\int f(x)dx = \sin 2x + \cos 2x + C \quad f(x) - ?$

37. $\int f(x)dx = -\sin 3x + 3\cos 6x + C \quad f(x) - ?$

38. $\int f(x)dx = 5\sin x + 6\cos 6x + C \quad f(x) - ?$

39. $\int f(x)dx = 2\sin 4x + 6\cos 8x + C \quad f(x) - ?$

40. $\int f(x)dx = \sin 2x + 3\cos 4x + C \quad f(x) - ?$

41. $\int f(x)dx = -4\sin x + 3\cos 2x + C \quad f(x) - ?$

42. $\int f(x)dx = 6\sin x + 3\cos x + C \quad f(x) - ?$

43. $\int f(x)dx = 6x + 9x^3 + C \quad f(x) - ?$

44. $\int f(x)dx = 113x + x^2 + C \quad f(x) - ?$

45. $\int f(x)dx = 16\sin x + x + C \quad f(x) - ?$

46. $\int f(x)dx = 34x - 37\cos x + C \quad f(x) - ?$

47. $\int f(x)dx = -x + \cos x + C \quad f(x) - ?$

48. $\int f(x)dx = \sin 7x + x + C \quad f(x) - ?$

49. $\int f(x)dx = -9x + \cos x + C \quad f(x) - ?$

50. $\int 2(2x-5)^2 dx = ?$

51. $\int 2(2x-5)^2 dx = ?$

52. $\int (x-5)^2 dx = ?$

53. $\int 5(x-5)^2 dx = ?$

54. $\int (3x-5)^2 dx = ?$

55. $\int (x-8)^2 dx = ?$

56. $\int 2(x-1)^2 dx = ?$

57. $\int (2x-1)^2 dx = ?$

58. $\int 9(x-5)^2 dx = ?$

59. $\int (x+1)^3 dx = ?$

60. $\int (2x+1)^3 dx = ?$

61. $\int (x+1)^2 dx = ?$

62. $\int (x+6)^3 dx = ?$

63. $\int (3x+1)^3 dx = ?$

64. $\int (-2\sin x + 5\cos x)dx = ?$

65. $\int (\sin x + 5\cos x)dx = ?$

66. $\int (\sin x + \cos x)dx = ?$

67. $\int (\sin x + 9\cos x)dx = ?$

68. $\int (-2\sin x + \cos x)dx = ?$

69. $\int (5\sin x + \cos x)dx = ?$

70. $\int (2\sin x - \cos x)dx$

71. $\int \left(x - \dfrac{1}{\sin^2 x} \right)dx - ?$

72. $\int \left(2x - \dfrac{1}{\cos^2 x} \right)dx - ?$

73. $\int \left(8x - \dfrac{1}{\sin^2 x} \right)dx - ?$

74. $\int \left(x - \dfrac{5}{\sin^2 x} \right)dx - ?$

75. $\int \left(-2x - \dfrac{5}{\sin^2 x} \right)dx - ?$

76. $\int \left(4x^3 + \dfrac{1}{1+x^2} \right)dx - ?$

77. $\int \left(x^3 + \dfrac{1}{1+x^2} \right)dx - ?$

78. $\int \left(5x^3 + \dfrac{6}{1+x^2} \right)dx - ?$

79. $\int \left(-x^3 + \dfrac{1}{1+x^2} \right)dx - ?$

80. Integralni hisoblang $\int \dfrac{dx}{\cos^2 x}$

81. Integralni hisoblang $\int \dfrac{dx}{x^3}$

82. Integralni hisoblang $\int 2^x dx$

83. Integralni hisoblang $\int \dfrac{dx}{\sqrt{5-x^2}}$

84. Integralni hisoblang $\int \dfrac{dx}{\sqrt{x^2-7}}$

85. Integralni hisoblang $\int \dfrac{dx}{\sqrt{x^2-10}}$

86. Integralni hisoblang $\int (7x-1)^{23} dx$

. $\int \dfrac{7x+4}{(x-3)(x+2)} dx$

$\int \dfrac{5}{(x-3)(x+2)} dx$

. $\int \sin 3x \cdot \sin x \, dx$

. $\displaystyle\int_{0}^{1} x^2 dx$

. $\displaystyle\int_{2}^{3} x^2 dx$

. $\displaystyle\int_{2}^{3} 9x \, dx$

. $\displaystyle\int_{3}^{4} x^3 dx$

. $\displaystyle\int_{2}^{3} (x^2+2) dx$

. $\displaystyle\int_{2}^{3} 9x^2 dx$

. $\displaystyle\int_{2}^{3} \dfrac{2}{3} x^2 dx$

. $\displaystyle\int_{2}^{3} -\dfrac{1}{2} x^2 dx$

. $\displaystyle\int_{2}^{3} -x^3 dx$

. $\displaystyle\int_{2}^{3} \dfrac{1}{3} x^2 dx$

. $\displaystyle\int_{2}^{3} 66x \, dx$

. $\displaystyle\int_{2}^{3} 113 x^2 dx$

. $\displaystyle\int_{-1}^{0} 6(2x+1)^2 dx$

$$\int_{-1}^{0} 3e^{-x}dx$$

$$\int_{6}^{7} \frac{dx}{x-5}$$

$$\int_{6}^{7} \frac{dx}{x-9}$$

$$\int_{1}^{2} \frac{dx}{2x-5}$$

$$\int_{1}^{4} \frac{dx}{x-7}$$

$$\int_{2}^{5} \frac{dx}{3x-5}$$

$$\int_{1}^{2} \frac{dx}{x+9}$$

$$\int_{1}^{2} \frac{dx}{x-7}$$

$$\int_{1}^{2} \frac{dx}{2x+1}$$

$$\int_{1}^{2} \frac{dx}{4x+9}$$

$$\int_{1}^{2} \frac{dx}{x-54}$$

$$\int_{1}^{2} \frac{dx}{3x+9}$$

$$\int_{-1}^{0} (2x+1)^{2} dx$$

$$\int_{0}^{\pi/2} 6\cos x dx$$

$$\int_{0}^{\pi/2} -\cos x dx$$

$$\int_{0}^{\pi/2} 6\cos 6x dx$$

$$. \int_{0}^{\pi/2} 9\cos 2x\,dx$$

$$. \int_{0}^{\pi/2} 4\cos x\,dx$$

$$. \int_{0}^{\pi/2} 8\cos 2x\,dx$$

$$. \int_{\frac{1}{2}}^{1} \sqrt{4x-2}\,dx$$

$$. \int_{1}^{3} \frac{dx}{x^2+1}$$

$$. \int_{1}^{e^3} \frac{\ln^2 x}{3x}\,dx$$

$$. \int_{-1}^{0} xe^{-x}\,dx$$

$$\int_{0}^{+\infty} \cos x\,dx$$

$$\int_{0}^{+\infty} x^3\,dx$$

$$\int_{1}^{+\infty} \frac{1}{x^2}\,dx$$

129. Limit

130. Limitni hisoblang $\quad x^{(n)} = \left(\dfrac{1}{n}, \dfrac{1}{n}\cos n\right)$, $\displaystyle\lim_{x\to\infty} x^{(n)} = ?$

131. $\displaystyle\lim_{\substack{x\to 0 \\ y\to 0}} \cos(21x + 3y^2) - ?$

132. $\displaystyle\lim_{\substack{x\to 0 \\ y\to 5}}\left(tg\,\dfrac{x}{y} + 2y^2\right) - ?$

133. $\displaystyle\lim_{\substack{x\to 0 \\ y\to 1}}\left(3\sin xy + y^2 + 11\right) - ?$

134. $\displaystyle\lim_{\substack{x\to 0 \\ y\to 0}}\left(4\sin xy - 7xy^2\right) - ?$

135. $\displaystyle\lim_{\substack{x\to 0 \\ y\to 1}}\left(\sin xy - y^2\right) - ?$

$$x^{(n)} = \left(\frac{13-n^2}{1+2n^2}, \frac{2n-1}{2-3n}\right), \quad \lim_{x\to\infty} x^{(n)} = ?$$

136. $\lim\limits_{\substack{x\to 0 \\ y\to 1}}\left(9xy-y^{2}\right)-?$

137. $\lim\limits_{\substack{x\to 0 \\ y\to 1}}\left(6xy+y^{2}\right)-?$

138. $\lim\limits_{\substack{x\to 0 \\ y\to 1}}\left(x+y-y^{2}\right)-?$

139. $\lim\limits_{\substack{x\to 0 \\ y\to 1}}\left(8xy+y^{2}\right)-?$

140. $u(x,y)=x+xy-4y \qquad u_{x}(x,y)-?$

141. $u(x,y)=x+y+5xy \qquad u_{x}(x,y)-?$

142. $u(x,y)=2x+y+8xy \qquad u_{x}(x,y)-?$

143. $u(x,y)=9x-xy-4y \qquad u_{x}(x,y)-?$

144. $u(x,y)=x+7y+xy \qquad u_{x}(x,y)-?$

145. $u(x,y)=x+y-4xy \qquad u_{x}(x,y)-?$

146. $u(x,y)=8x+xy-4y \qquad u_{x}(x,y)-?$

147. $u(x,y)=3x+y-xy \qquad u_{x}(x,y)-?$

148. $u(x,y)=xy-4y \qquad u_{x}(x,y)-?$

149. $u(x,y)=x+9y \qquad u_{x}(x,y)-?$

150. $u(x,y)=x+y-88xy \qquad u_{x}(x,y)-?$

151. $u(x,y)=x^{2}+y^{2}-5y \qquad u_{x}(x,y)-?$

152. $u(x,y)=-x+y \qquad u_{y}(x,y)-?$

153. $u(x,y)=56x+y \qquad u_{y}(x,y)-?$

154. $u(x,y)=xy+y \qquad u_{y}(x,y)-?$

155. $u(x,y)=87x+y \qquad u_{y}(x,y)-?$

156. $u(x,y)=x+96y \qquad u_{y}(x,y)-?$

157. $u(x,y)=-x-xy \qquad u_{y}(x,y)-?$

158. $u(x,y)=7xy+y \qquad u_{y}(x,y)-?$

159. $u(x,y)=3x+6y \qquad u_{y}(x,y)-?$

160. $u(x,y)=x+23y \qquad u_{y}(x,y)-?$

161. $u(x,y)=67x+xy \qquad u_{y}(x,y)-?$

162. $u(x,y)=66xy+y \qquad u_{y}(x,y)-?$

. $z=2x+y+3$

. $z=\sin xy$

. $z=xy+x^{2}y^{2}$

. $z=x^{3}y^{2}+xy^{3}$

. $z=10e^{xy}$

. $z=e^{5xy}$

. $z=\cos xy$

. $z=y\cos x$

. $z=\cos\sqrt{xy}$

. $z = x^2 + \cos y$

. $z = x + \cos y$

. $z = x^2 + \cos yx$

175. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = x^2 + y^2$

176. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = x^2 + yx$

177. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = x^2 y^2$

178. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = e^{x+y}$

179. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = e^{xy}$

180. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = e^x + yx$

181. Funksiyaning ikkinchi tartibli xususiy hosilasini toping $z = e^y + xy$

182. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = xy - \dfrac{x}{y}$

183. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = xy - x\sqrt{y}$

184. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = xy - \dfrac{4}{y}$

185. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = xy - \dfrac{x}{6}$

186. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = x^2 - \dfrac{6x}{y}$

187. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = x + y - \dfrac{x}{y}$

188. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = x - \dfrac{x}{y}$

189. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = y - \dfrac{x}{y}$

190. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = x + y - \dfrac{x}{y}$

191. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = e^{xy}$

192. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = e^{x+y}$

193. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = e^{x^2}$

194. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$ $z = e^{y^2}$

195. $\dfrac{\partial^3 z}{\partial x \partial y^2} = ?$ $z = x^2 y^3$

196. $\dfrac{\partial^3 z}{\partial x \partial y^2} = ?$ $z = x^2 y^2$

197. $\dfrac{\partial^3 z}{\partial x \partial y^2} = ?$ $z = x^3 y^3$

198. $\dfrac{\partial^3 z}{\partial x \partial y^2} = ?$ $z = x^3 y^2$

199. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$

$z = xy - \sqrt{xy}$

200. $\dfrac{\partial^2 z}{\partial x \partial y} = ?$

$z = x^2 y^2 - \dfrac{x}{y}$