

3-kurs (kechki)

«Differensial geometriya va topologiya» fanidan nazariy savollar

1. Egri chiziq urinmasi
2. Egri chiziq normal tekisligi
3. Yopishma tekislik va uning tenglamasi
4. Egri chiziq yoyi uzunligi va uni hisoblash
5. Egri chiziq egriligi va uni hisoblash
6. Egri chiziq buralishi va uni hisoblash
7. Sirt urinmasi
8. Sirt normal tekisligi
9. Sirtning birinchi kvadratik formasi
10. Sirtning ikkinchi kvadratik formasi

«Differensial geometriya va topologiya» fanidan amaliy savollar

1. $y = x^2 + 4x + 3$ uchun absissasi -1 bo'lgan nuqtadagi urinma tenglamasini yozing.
2. $y = x^2 + 4x + 3$ uchun absissasi 0 bo'lgan nuqtadagi urinma tenglamasini yozing.
3. $y = x^2 + 4x + 3$ uchun absissasi 1 bo'lgan nuqtadagi urinma tenglamasini yozing.
4. $y = \sin x$ uchun absissasi 0 bo'lgan nuqtadagi urinma tenglamasini yozing.
5. $y = \sin x$ uchun absissasi $\frac{\pi}{2}$ bo'lgan nuqtadagi urinma tenglamasini yozing.
6. $y = \sin x$ uchun absissasi π bo'lgan nuqtadagi urinma tenglamasini yozing.
7. $y = \cos x$ uchun absissasi 0 bo'lgan nuqtadagi urinma tenglamasini yozing.
8. $y = \cos x$ uchun absissasi $\frac{\pi}{2}$ bo'lgan nuqtadagi urinma tenglamasini yozing.
9. $y = \cos x$ uchun absissasi π bo'lgan nuqtadagi urinma tenglamasini yozing.
10. $y = \operatorname{tg} x$ uchun absissasi 0 bo'lgan nuqtadagi urinma tenglamasini yozing.
11. $y = \operatorname{tg} x$ uchun absissasi $\frac{\pi}{4}$ bo'lgan nuqtadagi urinma tenglamasini yozing.

12. $x = t^3 - 2t$, $y = t^2 + 1$ uchun $A(t=1)$ nuqtadagi urinma tenglamasini yozing.

13. $x = a \cos^3 t$, $y = a \sin^3 t$ uchun urinma tenglamasini yozing.

14. $x = a(t - \sin t)$, $y = a(1 - \cos t)$ uchun urinma tenglamasini yozing.

15. $x = a \cos t$, $y = b \sin t$ uchun urinma tenglamasini yozing.

16. $x = \frac{a}{2} \left(t + \frac{1}{t} \right)$, $y = \frac{b}{2} \left(t - \frac{1}{t} \right)$ uchun urinma tenglamasini yozing.

17. $y = x^2 + 4x + 3$ uchun absissasi -1 bo'lgan nuqtadagi normal tenglamasini yozing.

18. $y = x^2 + 4x + 3$ uchun absissasi 0 bo'lgan nuqtadagi normal tenglamasini yozing.

19. $y = x^2 + 4x + 3$ uchun absissasi 1 bo'lgan nuqtadagi normal tenglamasini yozing.

20. $y = \sin x$ uchun absissasi 0 bo'lgan nuqtadagi normal tenglamasini yozing.

21. $y = \sin x$ uchun absissasi $\frac{\pi}{2}$ bo'lgan nuqtadagi normal tenglamasini yozing.

22. $y = \sin x$ uchun absissasi π bo'lgan nuqtadagi normal tenglamasini yozing.

23. $y = \cos x$ uchun absissasi 0 bo'lgan nuqtadagi normal tenglamasini yozing.

24. $y = \cos x$ uchun absissasi $\frac{\pi}{2}$ bo'lgan nuqtadagi normal tenglamasini yozing.

25. $y = \cos x$ uchun absissasi π bo'lgan nuqtadagi normal tenglamasini yozing.

26. $y = \operatorname{tg} x$ uchun absissasi 0 bo'lgan nuqtadagi normal tenglamasini yozing.

27. $y = \operatorname{tg} x$ uchun absissasi $\frac{\pi}{4}$ bo'lgan nuqtadagi normal tenglamasini yozing.

28. $x = t^3 - 2t$, $y = t^2 + 1$ uchun $A(t=1)$ nuqtadagi normal tenglamasini yozing.

29. $x = a \cos^3 t$, $y = a \sin^3 t$ uchun normal tenglamasini yozing.

30. $x = a(t - \sin t)$, $y = a(1 - \cos t)$ uchun normal tenglamasini yozing.

31. $x = a \cos t$, $y = b \sin t$ uchun normal tenglamasini yozing.

32. $x = \frac{a}{2} \left(t + \frac{1}{t} \right)$, $y = \frac{b}{2} \left(t - \frac{1}{t} \right)$ uchun normal tenglamasini yozing.

33. $y = \frac{2}{x-3}$ chiziqning asimptotalarini toping.

34. $y = \frac{5}{x^2-16}$ chiziqning asimptotalarini toping.

35. $y = \frac{a^3}{a^2+x^2}$ chiziqning asimptotalarini toping.

36. $y = \frac{x^2-4x+7}{x}$ chiziqning asimptotalarini toping.

37. $y = \frac{x^2}{x+2}$ chiziqning asimptotalarini toping.

38. $y = \frac{x^3+1}{x}$ chiziqning asimptotalarini toping.

39. $x = \frac{2t}{(t-1)(t-2)}, y = \frac{t^2}{(t-1)(t-3)}$ chiziqning asimptotalarini toping.

40. $x = \frac{2t-1}{t^2-1}, y = \frac{t^2}{t-1}$ chiziqning asimptotalarini toping.

41. $x = \frac{t^2}{t-1}, y = \frac{t}{t^2-1}$ chiziqning asimptotalarini toping.

42. $y = \sin x$ egri chiziqning egriligini toping.

43. $y = a \operatorname{ch} \frac{x}{a}$ egri chiziqning egriligini toping.

44. $x = t^2, y = t^3$ egri chiziqning egriligini toping.

45. $x = a \cos t, y = b \sin t$ egri chiziqning egriligini toping.

46. $x = a \operatorname{ch} t, y = b \operatorname{sh} t$ egri chiziqning egriligini toping.

47. $x = a(t - \sin t), y = a(1 - \cos t)$ egri chiziqning egriligini toping.

48. $x = a \cos^3 t, y = a \sin^3 t$ egri chiziqning egriligini toping.

49. $y = x^4$ egri chiziqning egriligini toping.

50. $t = 0$ nuqtadagi $x = t, y = t^2, z = e^t$ egri chiziq uchun binormal tenglamani yozing.

51. $t = 1$ nuqtadagi $x = t, y = t^2, z = t^3$ egri chiziq uchun binormal tenglamani yozing.

52. $x = \cos^3 t, y = \sin^3 t, z = \cos 2t$ egri chiziq uchun binormal tenglamani yozing.

53. $x = a(t - \sin t), y = a(t - \cos t), z = 4a \cos \frac{t}{2}$ egri chiziq uchun binormal tenglamani yozing.

54. $x = a \cos t, y = a \sin t, z = bt$ egri chiziq uchun binormal tenglamani yozing.

55. $x = \cos^3 t$, $y = \sin^3 t$, $z = \cos 2t$ egri chiziqqa yopishma tekislik tenglamasini yozing.

56. $x = t$, $y = t^2$, $z = e^t$ egri chiziqqa yopishma tekislik tenglamasini yozing.

57. $x = t$, $y = t^2$, $z = t^3$ egri chiziqqa yopishma tekislik tenglamasini yozing.

58. $x = \cos^3 t$, $y = \sin^3 t$, $z = \cos 2t$ egri chiziqqa yopishma tekislik tenglamasini yozing.

59. $x = a(t - \sin t)$, $y = a(t - \cos t)$, $z = 4a \cos \frac{t}{2}$ egri chiziqqa yopishma tekislik tenglamasini yozing.

60. $x = 3t - t^3$, $y = 3t^2$, $z = 3t + t^2$ egri chiziqqa yopishma tekislik tenglamasini yozing.

61. $x = a \cos t$, $y = a \sin t$, $z = at$ egri chiziqning egriligini toping.

62. $x = 3t - t^3$, $y = 3t^2$, $z = 3t + t^2$ egri chiziqning egriligini toping.

63. $x = a \cos t$, $y = a \sin t$, $z = bt$ egri chiziqning egriligini toping.

64. $x = t \cos t$, $y = t \sin t$, $z = at$ egri chiziqning egriligini toping.

65. $x = e^t$, $y = -e^t$, $z = \sqrt{2}t$ egri chiziqning egriligini toping.

66. $x = 2t$, $y = \ln t$, $z = t^2$ egri chiziqning egriligini toping.

67. $x = \cos^3 t$, $y = \sin^3 t$, $z = \cos 2t$ egri chiziqning egriligini toping.

68. $x = a \cos t$, $y = a \sin t$, $z = bt$ egri chiziqning egriligini toping.

69. $x = a(t - \sin t)$, $y = a(t - \cos t)$, $z = 4a \cos \frac{t}{2}$ egri chiziqning egriligini toping.

70. $x = a \cos t$, $y = a \sin t$, $z = ct$ egri chiziqning egriligini toping.

71. $x = a \cos t$, $y = a \sin t$, $z = at$ egri chiziqning buralishini toping.

72. $x = 3t - t^3$, $y = 3t^2$, $z = 3t + t^2$ egri chiziqning buralishini toping.

73. $x = a \cos t$, $y = a \sin t$, $z = bt$ egri chiziqning buralishini toping.

74. $x = t \cos t$, $y = t \sin t$, $z = at$ egri chiziqning buralishini toping.

75. $x = e^t$, $y = -e^t$, $z = \sqrt{2}t$ egri chiziqning buralishini toping.

76. $x = 2t$, $y = \ln t$, $z = t^2$ egri chiziqning buralishini toping.

77. $x = \cos^3 t$, $y = \sin^3 t$, $z = \cos 2t$ egri chiziqning buralishini toping.

78. $x = a \cos t$, $y = a \sin t$, $z = bt$ egri chiziqning buralishini toping.

79. $x = a(t - \sin t)$, $y = a(t - \cos t)$, $z = 4a \cos \frac{t}{2}$ egri chiziqning buralishini toping.

80. $x = a \cos t$, $y = a \sin t$, $z = ct$ egri chiziqning buralishini toping.

81. $x = R \cos u \cos v$, $y = R \cos u \sin v$, $z = R \sin u$ egri chiziqning birinchi kvadratik formasini toping.

82. $x = a \cos u \cos v, y = a \cos u \sin v, z = c \sin u$ egri chiziqning birinchi kvadratik formasini toping.

83. $x = a \operatorname{ch} u \cos v, y = a \operatorname{ch} u \sin v, z = c \operatorname{sh} u$ egri chiziqning birinchi kvadratik formasini toping.

84. $x = a \operatorname{sh} u \cos v, y = a \operatorname{sh} u \sin v, z = c \operatorname{ch} u$ egri chiziqning birinchi kvadratik formasini toping.

85. $x = u \cos v, y = u \sin v, z = u^2$ egri chiziqning birinchi kvadratik formasini toping.

86. $x = R \cos u \cos v, y = R \cos u \sin v, z = R \sin u$ egri chiziqning ikkinchi kvadratik formasini toping.

87. $x = a \cos u \cos v, y = a \cos u \sin v, z = c \sin u$ egri chiziqning ikkinchi kvadratik formasini toping.

88. $x = a \operatorname{ch} u \cos v, y = a \operatorname{ch} u \sin v, z = c \operatorname{sh} u$ egri chiziqning ikkinchi kvadratik formasini toping.

89. $x = a \operatorname{sh} u \cos v, y = a \operatorname{sh} u \sin v, z = c \operatorname{ch} u$ egri chiziqning ikkinchi kvadratik formasini toping.

90. $x = u \cos v, y = u \sin v, z = u^2$ egri chiziqning ikkinchi kvadratik formasini toping.