AP Calculus AB

Sample Question Paper - 2025

Country: US | Duration: 3h 15m | Max Marks: 5-point scale | Language: English

Negative Marking: No | Total Questions: 45 | QuizVerse AI Tutor

General Instructions:

1. This paper contains 45 questions across 1 section(s): Calculus.
2. Duration: 3h 15m. Maximum marks: 5-point scale.
3. Negative marking: No.
4. Read each question carefully before answering.

Section 1: Calculus (45 Questions)

Q1. The rank of the matrix [[1,2,3],[4,5,6],[7,11,12]] is:

(A) 3

(B) 2

(C) 1

(D) 0

Q2. The rank of the matrix [[1,2,3],[4,5,6],[9,11,9]] is:

(A) 2

(B) 0

(C) 1

(D) 3

Q3. The mean of a binomial distribution with n = 48 and p = 0.3 is:

(A) 17.8

(B) 31.3

(C) 10.8

(D) 17.9

Q4. The probability of getting exactly 2 heads in 8 tosses of a fair coin is:

(A) 33/256

(B) 35/256

(C) 23/64

(D) 31/32

Q5. lim(x->0) sin(3x)/x =

(A) 5

(B) 2

(C) 3

(D) 1

Q6. Integral of (x^4 + 6) dx from 0 to 4 equals:

(A) 69

(B) 91

(C) 65

(D) 29

Q7. The rank of the matrix [[1,2,3],[4,5,6],[7,10,12]] is:

(A) 2

(B) 0

(C) 1

(D) 3

Q8. The rank of the matrix [[1,2,3],[4,5,6],[9,8,12]] is:

(A) 3

(B) 2

(C) 1

(D) 0

Q9. The number of ways to arrange 5 distinct objects in a circle is:

(A) 4397

(B) 1700

(C) 4168

(D) 3023

Q10. The sum of first 45 terms of AP with a = 4, d = 2 is:

(A) 2366

(B) 3704

(C) 3995

(D) 1024

Q11. The eccentricity of the ellipse x^2/18 + y^2/16 = 1 is:

(A) 0.68

(B) 0.78

(C) 0.61

(D) 0.82

Q12. The eccentricity of the ellipse x^2/14 + y^2/16 = 1 is:

(A) 0.84

(B) 0.70

(C) 0.59

(D) 0.87

Q13. The derivative of x^5 sin(x) at x = pi is:

(A) -5.82

(B) -2.38

(C) 15.08

(D) 6.95

Q14. The distance between parallel lines 5x + 5y = 6 and 3x + 3y = 14 is:

(A) 1.34

(B) 2.17

(C) 1.40

(D) 2.03

Q15. The equation of tangent to y = x^3 at x = 2 is:

(A) y = 5x - 12

(B) y = 8x - 4

(C) y = 6x - 7

(D) y = 2x - 13

Q16. The equation of tangent to y = x^4 at x = 1 is:

(A) y = 4x - 4

(B) y = 10x - 4

(C) y = 12x - 9

(D) y = 10x - 15

Q17. The probability of getting exactly 3 heads in 6 tosses of a fair coin is:

(A) 21/32

(B) 32/64

(C) 15/256

(D) 33/64

Q18. The eccentricity of the ellipse x^2/14 + y^2/12 = 1 is:

(A) 0.60

(B) 0.32

(C) 0.60

(D) 0.43

Q19. Integral of (x^2 + 6) dx from 0 to 5 equals:

(A) 60

(B) 38

(C) 57

(D) 37

Q20. Integral of (x^2 + 8) dx from 0 to 4 equals:

(A) 75

(B) 51

(C) 66

(D) 79

Q21. The distance between parallel lines 2x + 4y = 6 and 5x + 3y = 13 is:

(A) 2.39

(B) 3.80

(C) 4.23

(D) 4.49

Q22. The value of integral sin^2(x) dx from 0 to pi/2 is:

(A) 3pi/32

(B) 1pi/8

(C) 15pi/16

(D) 11pi/8

Q23. The equation of tangent to y = x^4 at x = 1 is:

(A) y = 4x - 14

(B) y = 5x - 20

(C) y = 12x - 3

(D) y = 11x - 17

Q24. The value of integral sin^6(x) dx from 0 to pi/2 is:

(A) 9pi/32

(B) 13pi/4

(C) 6pi/4

(D) 13pi/4

Q25. The derivative of x^2 sin(x) at x = pi is:

(A) 17.63

(B) -14.03

(C) -1.55

(D) -14.17

Q26. The number of ways to arrange 4 distinct objects in a circle is:

(A) 1390

(B) 35

(C) 3788

(D) 3490

Q27. Integral of (x^4 + 8) dx from 0 to 1 equals:

(A) 88

(B) 64

(C) 18

(D) 40

Q28. The eccentricity of the ellipse x^2/16 + y^2/12 = 1 is:

(A) 0.40

(B) 0.45

(C) 0.82

(D) 0.81

Q29. The equation of tangent to y = x^2 at x = 1 is:

(A) y = 8x - 6

(B) y = 11x - 3

(C) y = 5x - 9

(D) y = 3x - 12

Q30. The value of integral sin^2(x) dx from 0 to pi/2 is:

(A) 15pi/32

(B) 4pi/32

(C) 5pi/8

(D) 5pi/32

Q31. lim(x->0) sin(4x)/x =

(A) 4

(B) 5

(C) 5

(D) 5

Q32. The number of ways to arrange 3 distinct objects in a circle is:

(A) 103

(B) 2738

(C) 3417

(D) 371

Q33. If z = 1 + 1i, then |z| =

(A) 4.88

(B) 2.09

(C) 9.32

(D) 3.66

Q34. If det(A) = 7 and A is 3x3, then det(2A) =

(A) 38

(B) 16

(C) 62

(D) 64

Q35. The number of ways to arrange 4 distinct objects in a circle is:

(A) 4210

(B) 4943

(C) 604

(D) 539

Q36. The value of integral sin^4(x) dx from 0 to pi/2 is:

(A) 5pi/4

(B) 8pi/8

(C) 12pi/32

(D) 8pi/8

Q37. Integral of (x^3 + 8) dx from 0 to 1 equals:

(A) 5

(B) 84

(C) 6

(D) 32

Q38. If z = 1 + 4i, then |z| =

(A) 9.72

(B) 8.04

(C) 8.81

(D) 1.55

Q39. The area under y = x^2 from x = 0 to x = 5 is:

(A) 65.9

(B) 152.6

(C) 37.6

(D) 94.0

Q40. The eccentricity of the ellipse x^2/6 + y^2/9 = 1 is:

(A) 0.77

(B) 0.40

(C) 0.49

(D) 0.49

Q41. The area under y = x^2 from x = 0 to x = 3 is:

(A) 40.0

(B) 58.9

(C) 151.5

(D) 192.7

Q42. The number of ways to arrange 7 distinct objects in a circle is:

(A) 2306

(B) 2042

(C) 358

(D) 807

Q43. The area under y = x^2 from x = 0 to x = 4 is:

(A) 20.4

(B) 96.3

(C) 121.1

(D) 87.4

Q44. The sum of first 30 terms of AP with a = 5, d = 4 is:

(A) 418

(B) 4044

(C) 4193

(D) 595

Q45. The area under y = x^4 from x = 0 to x = 3 is:

(A) 59.6

(B) 9.3

(C) 112.4

(D) 79.0

Answer Key

Q1: (B)	Q2: (A)	Q3: (B)	Q4: (D)	Q5: (C)
Q6: (D)	Q7: (A)	Q8: (B)	Q9: (D)	Q10: (B)
Q11: (A)	Q12: (C)	Q13: (C)	Q14: (C)	Q15: (C)
Q16: (B)	Q17: (A)	Q18: (D)	Q19: (A)	Q20: (B)
Q21: (C)	Q22: (A)	Q23: (D)	Q24: (B)	Q25: (B)
Q26: (D)	Q27: (A)	Q28: (A)	Q29: (A)	Q30: (D)
Q31: (A)	Q32: (A)	Q33: (B)	Q34: (A)	Q35: (D)
Q36: (A)	Q37: (C)	Q38: (A)	Q39: (A)	Q40: (C)
Q41: (B)	Q42: (D)	Q43: (D)	Q44: (B)	Q45: (B)