Sample Paper · Class 11

Questions	Marks each	Total marks	Time	Answers on
50	**2**	**100**	**1 hour**	**OMR sheet**

Instructions

1. This paper has **50 multiple-choice questions**. Each has four options, and only one is correct.
2. Each question carries **2 marks**. The paper is out of **100 marks**.
3. Time allowed: **1 hour**.
4. In the real exam, mark your answers on the **OMR sheet**. A practice OMR sheet is included before the answer key.
5. Score **70% or more** in Round 1 to qualify for Round 2 (national level).

Name _____ Class 11 Score _____ / 100

School _____

Questions

1. What is the coefficient of x^3 in $(1 + x)^8$?

(A) 24 **(B)** 56
(C) 336 **(D)** 28

2. π/6 radians is equal to:

(A) 60° **(B)** 15°
(C) 30° **(D)** 150°

3. What is the value of 10C2?

(A) 45 **(B)** 10
(C) 90 **(D)** 55

4. What is the sum of the first 16 terms of the AP 5, 10, 15, ...?

(A) 681 **(B)** 680
(C) 692 **(D)** 682

5. How many subsets does a set with 3 elements have?

(A) 6 **(B)** 7
(C) 8 **(D)** 9

6. What is the slope of the line through (3, −3) and (7, −1)?

(A) 3/2 **(B)** 1/2
(C) 2 **(D)** −1/2

7. What is the sum to infinity of the GP 6, 2, 2/3, ...?

(A) 18 **(B)** 9
(C) 10 **(D)** 8

8. What is the slope of the line $3x + 4y + 7 = 0$?

(A) $-3/4$ **(B)** $4/3$
(C) $-4/3$ **(D)** $3/4$

9. What is the limit of $(x^2 - 9)/(x - 3)$ as $x \to 3$?

(A) 3 **(B)** 0
(C) 9 **(D)** 6

10. What is the 4th term of the GP 4, 12, 36, ...?

(A) 48 **(B)** 36
(C) 324 **(D)** 108

11. If $f(x) = 5x^2 + 8$, what is $f(-2)$?

(A) -2 **(B)** -12
(C) 28 **(D)** 29

12. What is the modulus of $6 + 8i$?

(A) 10 **(B)** 100
(C) 11 **(D)** 14

13. $n(A) = 34$, $n(B) = 28$ and $n(A \cap B) = 10$. What is $n(A \cup B)$?

(A) 52 **(B)** 62
(C) 42 **(D)** 72

14. What is the value of i^{34}?

(A) -1 **(B)** 1
(C) $-i$ **(D)** i

15. How many terms are there in the expansion of $(a + b)^8$?

(A) 9 **(B)** 16
(C) 8 **(D)** 10

16. What is the value of i^{16}?

(A) i **(B)** 1
(C) $-i$ **(D)** -1

17. What is the value of 6P4?

(A) 15 **(B)** 366
(C) 360 **(D)** 1,296

18. What is the 5th term of the GP 5, 10, 20, ...?

(A) 50 **(B)** 40
(C) 160 **(D)** 80

19. What is the sum of the first 17 terms of the AP 5, 9, 13, ...?

(A) 629 **(B)** 631
(C) 619 **(D)** 628

20. What is the value of 6C4?

(A) 21 **(B)** 15
(C) 360 **(D)** 20

21. What is the modulus of 3 + 4i?

(A) 6 **(B)** 25
(C) 5 **(D)** 7

22. What is the slope of the line through (1, 0) and (4, 2)?

(A) 5/3 **(B)** 3/2
(C) −2/3 **(D)** 2/3

23. What is the limit of $(x^2 - 25)/(x - 5)$ as $x \to 5$?

(A) 25 **(B)** 10
(C) 0 **(D)** 5

24. n(A) = 34, n(B) = 31 and n(A ∩ B) = 11. What is n(A ∪ B)?

(A) 43 **(B)** 65
(C) 54 **(D)** 76

25. If $y = 5x^4$, what is dy/dx at x = 2?

(A) 80 **(B)** 160
(C) 320 **(D)** 32

26. What is the coefficient of x^3 in $(1 + x)^5$?

(A) 11 **(B)** 60
(C) 15 **(D)** 10

27. How many terms are there in the expansion of $(a + b)^5$?

(A) 7 **(B)** 6
(C) 10 **(D)** 5

28. What is the limit of $(x^2 - 36)/(x - 6)$ as $x \to 6$?

(A) 12 **(B)** 0
(C) 6 **(D)** 36

29. What is the value of i^{14}?

(A) −1 **(B)** −i
(C) 1 **(D)** i

30. n(A) = 21, n(B) = 27 and n(A ∩ B) = 6. What is n(A ∪ B)?

(A) 54 **(B)** 48
(C) 42 **(D)** 36

31. $5\pi/6$ radians is equal to:

(A) 75° **(B)** 300°
(C) 30° **(D)** 150°

32. What is the 5th term of the GP 4, 12, 36, ...?

(A) 972 **(B)** 324
(C) 108 **(D)** 60

33. What is the coefficient of x^2 in $(1 + x)^8$?

(A) 56 **(B)** 16
(C) 28 **(D)** 8

34. What is the sum to infinity of the GP 8, 4, 2, ...?

(A) 12 **(B)** 17
(C) 32 **(D)** 16

35. What is the slope of the line through (1, 3) and (4, 9)?

(A) 1/2 **(B)** 2
(C) −2 **(D)** 3

36. What is the sum of the first 14 terms of the AP 9, 12, 15, ...?

(A) 379 **(B)** 405
(C) 415 **(D)** 399

37. What is the value of 8C2?

(A) 28 **(B)** 56
(C) 8 **(D)** 36

38. What is the 6th term of the GP 5, 10, 20, ...?

(A) 320 **(B)** 60
(C) 80 **(D)** 160

39. How many subsets does a set with 5 elements have?

(A) 32 **(B)** 31
(C) 25 **(D)** 10

40. $n(A) = 32$, $n(B) = 17$ and $n(A \cap B) = 5$. What is $n(A \cup B)$?

(A) 44 **(B)** 39
(C) 54 **(D)** 49

41. What is the slope of the line through (−4, −1) and (−3, 3)?

(A) 1/4 **(B)** 5
(C) 4 **(D)** −4

42. What is the limit of $(x^2 - 49)/(x - 7)$ as $x \to 7$?

(A) 0 **(B)** 14
(C) 7 **(D)** 49

43. What is the slope of the line $4x + 2y + 7 = 0$?

(A) 2 **(B)** 1/2
(C) −2 **(D)** −1/2

44. What is the coefficient of x^3 in $(1 + x)^9$?

(A) 504 **(B)** 84
(C) 27 **(D)** 36

45. If $y = 3x^4$, what is dy/dx at $x = 3$?

(A) 972 **(B)** 108
(C) 324 **(D)** 243

46. What is the value of 9P4?

(A) 6,561 **(B)** 126
(C) 3,033 **(D)** 3,024

47. What is the value of 9C4?

(A) 135 **(B)** 126
(C) 3,024 **(D)** 84

48. $\pi/4$ radians is equal to:

(A) 90° **(B)** 45°
(C) 135° **(D)** 22°

49. What is the sum of the first 20 terms of the AP 7, 12, 17, ...?

(A) 1074 **(B)** 1080
(C) 1093 **(D)** 1090

50. How many terms are there in the expansion of $(a + b)^9$?

(A) 9 **(B)** 11
(C) 18 **(D)** 10

Practice OMR sheet

Fill one circle for each question, using a dark pen. Practising this now saves time in the real exam.

1	○ A	○ B	○ C	○ D
2	○ A	○ B	○ C	○ D
3	○ A	○ B	○ C	○ D
4	○ A	○ B	○ C	○ D
5	○ A	○ B	○ C	○ D
6	○ A	○ B	○ C	○ D
7	○ A	○ B	○ C	○ D
8	○ A	○ B	○ C	○ D
9	○ A	○ B	○ C	○ D
10	○ A	○ B	○ C	○ D
11	○ A	○ B	○ C	○ D
12	○ A	○ B	○ C	○ D
13	○ A	○ B	○ C	○ D
14	○ A	○ B	○ C	○ D
15	○ A	○ B	○ C	○ D
16	○ A	○ B	○ C	○ D
17	○ A	○ B	○ C	○ D
18	○ A	○ B	○ C	○ D
19	○ A	○ B	○ C	○ D
20	○ A	○ B	○ C	○ D
21	○ A	○ B	○ C	○ D
22	○ A	○ B	○ C	○ D
23	○ A	○ B	○ C	○ D
24	○ A	○ B	○ C	○ D
25	○ A	○ B	○ C	○ D

26	○ A	○ B	○ C	○ D
27	○ A	○ B	○ C	○ D
28	○ A	○ B	○ C	○ D
29	○ A	○ B	○ C	○ D
30	○ A	○ B	○ C	○ D
31	○ A	○ B	○ C	○ D
32	○ A	○ B	○ C	○ D
33	○ A	○ B	○ C	○ D
34	○ A	○ B	○ C	○ D
35	○ A	○ B	○ C	○ D
36	○ A	○ B	○ C	○ D
37	○ A	○ B	○ C	○ D
38	○ A	○ B	○ C	○ D
39	○ A	○ B	○ C	○ D
40	○ A	○ B	○ C	○ D
41	○ A	○ B	○ C	○ D
42	○ A	○ B	○ C	○ D
43	○ A	○ B	○ C	○ D
44	○ A	○ B	○ C	○ D
45	○ A	○ B	○ C	○ D
46	○ A	○ B	○ C	○ D
47	○ A	○ B	○ C	○ D
48	○ A	○ B	○ C	○ D
49	○ A	○ B	○ C	○ D
50	○ A	○ B	○ C	○ D

Answer key

Check your answers. Your score = number of correct answers × 2 marks.

1	2	3	4	5	6	7	8	9	10
B	**C**	**A**	**B**	**C**	**B**	**B**	**A**	**D**	**D**
11	12	13	14	15	16	17	18	19	20
C	**A**	**A**	**A**	**A**	**B**	**C**	**D**	**A**	**B**
21	22	23	24	25	26	27	28	29	30
C	**D**	**B**	**C**	**B**	**D**	**B**	**A**	**A**	**C**
31	32	33	34	35	36	37	38	39	40
D	**B**	**C**	**D**	**B**	**D**	**A**	**D**	**A**	**A**
41	42	43	44	45	46	47	48	49	50
C	**B**	**C**	**B**	**C**	**D**	**B**	**B**	**D**	**D**

Want more practice? Registered students also get mock tests, and free weekend quizzes are open to everyone at mathsolympiad.net/wc.