# ARITHMETIC PROGRESSION

*Anyone who cannot cope with mathematics is not fully human. At best he is a tolerable subhuman who has learnt to wear shoes, bath, and not make messes in the house.*

**By O.P. GUPTA Math Mentor**
**INDIRA AWARD WINNER**

💻 For detailed solutions, check YouTube Channel.

**YouTube.com/MathematiciaByOPGupta**

## ☆ Multiple Choice Questions, with **only** one correct option.

Q01. If a, b, c are in AP, then:

(a) $a+c=2b$ (b) $b+a=2c$ (c) $c=\frac{a+b}{2}$ (d) $a+c=b$

Q02. Next term of the AP - 9, 11, 13, 15, … is:

(a) 20 (b) 17 (c) 18 (d) 19

Q03. The sum of $6^{th}$ and $7^{th}$ terms of an AP is 39 and the common difference is 3, then the first term of AP is:

(a) 2 (b) –3 (c) 4 (d) 3

Q04. The sum of three numbers in AP is 30. If the greatest is 13 then, its common difference is:

(a) 2 (b) 4 (c) 5 (d) 3

Q05. The $9^{th}$ term from the end of the AP - 7, 11, 15, …, 147 is:

(a) 135 (b) 125 (c) 115 (d) 110

Q06. The sum of first 10 natural numbers is:

(a) 50 (b) 60 (c) 55 (d) 65

Q07. The common difference of the AP - $8\frac{1}{8}, 8\frac{2}{8}, 8\frac{3}{8}, \ldots$ is:

(a) $\frac{1}{8}$ (b) $1\frac{1}{8}$ (c) $8\frac{1}{8}$ (d) 1

Q08. How many natural numbers up to 300 are divisible by 17?

(a) 13 (b) 15 (c) 17 (d) 19

Q09. The sum of first n natural number is:

(a) $0.5n(n+1)$ (b) $\frac{n^2}{2}$ (c) $n+2$ (d) $0.5+(n+1)$

Q10. The fifteenth term of the arithmetic progression –23, –19, –15, … is:

(a) 30 (b) 31 (c) 32 (d) 33

Q11. The first negative term of the AP - $\frac{81}{5}, \frac{77}{5}, \frac{73}{5}, \ldots$ is:

(a) 23 (b) 20 (c) 21 (d) 22

Q12. The sum of n terms of an AP is $n(n-1)$, then the nth term will be:

(a) $2n$ (b) $2n-1$ (c) $2n-2$ (d) $2n-4$

Q13. If 1st and 6th terms of an AP are –12 and 8 and, sum of n terms is 120, then the number of terms is:

(a) 10 (b) 11 (c) 12 (d) 13

Q14. Which term of the AP - 21, 18, 15, … is –78?

(a) 5th (b) 53rd (c) 37th (d) 34th

Q15. How many two-digit numbers are divisible by 3?

(a) 23 (b) 25 (c) 30 (d) 33

Q16. How many terms of the A.P. - 9, 17, 25, … must taken to give a sum of 636?

(a) 13 (b) 14 (c) 12 (d) 15

Q17. The sum of the first 25 terms of an AP whose nth term is given by $t_n = 2-3n$, is:

(a) 925 (b) –925 (c) 875 (d) None of these

Q18. If $2x$, $(x+10)$ and $(3x+2)$ are in AP then $x =$ ……?

(a) 4 (b) 5 (c) 6 (d) 8

Q19. The first term of an arithmetic progression is 6 and its common difference is 5. Then 8th term is:

(a) 5 (b) 41 (c) 46 (d) None of these

Q20. In an AP if m times the mth term is equal to n times the nth term, then $(m+n)^{th}$ term is:

(a) 0 (b) 1 (c) 2 (d) 3

Q21. If 1st term of an AP is m and common difference is n, then the tenth term is:

(a) $(m+10n)$ (b) $(m+9n)$ (c) $(m-9n)$ (d) $(2m+9)$

Q22. The 10th term of the A.P. - 2, 7, 12, … is:

(a) 47 (b) 74 (c) 37 (d) 43

Q23. Which term of the A.P. - 21, 18, 15, … is –81?

(a) 27 (b) 23 (c) 35 (d) None of these

Q24. How many two digit numbers are divisible by 3?

(a) 25 (b) 30 (c) 37 (d) None of these

Q25. What is the 11th term from last term of the AP - 10, 7, 4, …, –62?

(a) –36 (b) –26 (c) –32 (d) –11

Q26. The sum of first 24 terms of the list of numbers whose nth term is $a_n = 3+2n$ :

(a) 642 (b) 6420 (c) 672 (d) None of these

Q27. If $(p+1)$, $3p$, $(4p+2)$ are in arithmetic progression then the value of p will be:

(a) 1 (b) 2 (c) 3 (d) 4

Q28. If $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ is the arithmetic mean between 'a' and 'b', then value of n will be:

(a) 0 (b) 1 (c) –1 (d) Can't be determined

Q29. The sum of all even numbers between 100 and 200 will be:

(a) 5640 (b) 7350 (c) 6750 (d) None of these

Q30. The common difference of the AP whose general term is $a_n = 2n+1$ is:

(a) 1 (b) 2 (c) –2 (d) –1

Q31. The number of terms in 2, 5, 8, …, 59 is:

(a) 12 (b) 19 (c) 20 (d) 25

Q32. The first positive term of the arithmetic progression –11, –8, –5, … is:

(a) –2 (b) 1 (c) –4 (d) 3

Q33. The $4^{th}$ term from the end of the AP given as 2, 5, 8, …, 35 is:

(a) 29 (b) 26 (c) 23 (d) 32

Q34. The $11^{th}$ and $13^{th}$ terms of an AP are 35 and 41 respectively. Its common difference is:

(a) 38 (b) 32 (c) 6 (d) 3

Q35. The next term of the AP - $\sqrt{8}, \sqrt{18}, \sqrt{32}, ...$ is:

(a) $5\sqrt{2}$ (b) $2\sqrt{5}$ (c) $3\sqrt{3}$ (d) $5\sqrt{3}$

Q36. If for an AP, $a_5 + a_{25} = 56$, then $a_{15}$ is:

(a) 28 (b) 82 (c) 76 (d) 67

Q37. Which of the following is not an AP?

(a) 1, 4, 7, … (b) –5, –2, 1, … (c) 3, 7, 12, 18, … (d) 11, 14, 17, 20, …

Q38. The sum of the first 20 odd natural numbers is:

(a) 281 (b) 285 (c) 400 (d) 421

Q39. The sum of first 20 natural numbers is:

(a) 110 (b) 170 (c) 190 (d) 210

Q40. The sum of first 10 multiples of 7 is:

(a) 315 (b) 371 (c) 385 (d) 406

Q41. The sum of the AP represented by 3, 7, 11, … is 210. The number of terms in this AP is:

(a) 10 (b) 12 (c) 15 (d) 22

Q42. The $30^{th}$ term of AP - 10, 7, 4, …, is:

(a) 97 (b) 7 (c) –77 (d) –97

Q43. $11^{th}$ term of the arithmetic progression –3, $-\frac{1}{2}$, 2, …, is:

(a) 28 (b) 22 (c) –38 (d) –28

Q44. Which term of AP - 3, 10, 17,… will be 84 more than its $13^{th}$ term?

(a) $t_{25}$ (b) $t_{24}$ (c) $t_{22}$ (d) $t_{26}$

Q45. What is the sum of first n odd natural numbers?

(a) $n^2 - 1$ (b) $n^2$ (c) $n^2 - 2$ (d) None of these

Q46. The sum of n terms of an AP is $2n^2 + 3n$. The sum of its first 10 terms is:

(a) 230 (b) 320 (c) 420 (d) 240

Q47. In an AP, the $3^{rd}$ term is 4 times its $1^{st}$ term and $6^{th}$ term is 17. The first term is:

(a) 2 (b) 5 (c) 8 (d) 11

Q48. The sum of first n natural numbers and, first 14 natural numbers are, respectively:

(a) $\frac{n(n+1)}{2}$, 105 (b) 105, $\frac{n(n+1)}{2}$ (c) $\frac{n(n+1)}{2}$ (d) 105

Q49. If $t_{10} - t_5 = 200$ then the common difference is:

(a) 30 (b) 40 (c) 50 (d) 60

Q50. How many 2 digit numbers are divisible by 5?

(a) 18 (b) 19 (c) 21 (d) 22

Q51. If the sides of a right angled triangle are in AP, then they will be equal to:

(a) 2, 4, 5 (b) 3, 4, 5 (c) 1, 2, 3 (d) 2, 3, 5

Q52. The sum of first 9 natural numbers is:

(a) 54 (b) 45 (c) 90 (d) 55

Q53. The sum of all the numbers between 1 and 1000, which are divisible by 5 but not by 2, is:

(a) 101100 (b) 50050 (c) 50000 (d) 10100

Q54. An arithmetic progression is such that the sum of first 8 numbers is –100 and the c.d. is 1. For what value of n would the sum of first n numbers be –100 again?

(a) 25 (b) 30 (c) 24 (d) There is no such value of n, other than $n = 8$

Q55. The sum to 100 terms of $(1 - 2 + 3 - 4 + 5 - ...)$ is:

(a) –500 (b) –50 (c) –100 (d) –1000

# ANSWERS KEY

| | | | | | | |
|---|---|---|---|---|---|---|
| Q01. a | Q02. b | Q03. d | Q04. d | Q05. c | Q06. c | Q07. a |
| Q08. c | Q09. a | Q10. d | Q11. d | Q12. c | Q13. d | Q14. d |
| Q15. c | Q16. c | Q17. b | Q18. c | Q19. b | Q20. a | Q21. b |
| Q22. a | Q23. c | Q24. b | Q25. c | Q26. c | Q27. c | Q28. a |
| Q29. b | Q30. b | Q31. c | Q32. b | Q33. b | Q34. d | Q35. a |
| Q36. a | Q37. c | Q38. c | Q39. d | Q40. c | Q41. a | Q42. c |
| Q43. b | Q44. a | Q45. b | Q46. a | Q47. a | Q48. a | Q49. b |
| Q50. a | Q51. b | Q52. b | Q53. c | Q54. a | Q55. b | |

# Dear math scholars,
We have taken utmost care while preparing this draft. Still chances of human error can't be ruled out.
Please inform us about any Typing error / mistake in this document.
This will help many future learners of Mathematics.

Email ID - **iMathematicia@gmail.com**
WhatsApp @ +91 9650350480 (only **message**)

**O.P. GUPTA,** ***Math Mentor***
*[Maths (Hons.), E & C Engg.,* ***Indira Award Winner****]*

*Follow us on Twitter* ***@theopgupta***
*Follow us on Instagram* ***@theopgupta***
*Official Website :* ***www.theOPGupta.com***

**YouTube.com/MathematiciaByOPGupta**

theopgupta.com
THE OPGUPTA

# MATHEMATICIA BY O.P. GUPTA

...a name you can bank upon!

**To get FREE PDF Materials, join WhatsApp Teachers Group by Clicking on the Logo**

**If you are a Student, then you may join our Students Group**

CLICK HERE FOR CLASSES IX & X

CLICK HERE FOR CLASSES XI & XII

**You can add our WhatsApp no. +919650350480 to your Groups also**

Feel Safe to **Share this Document** with other math scholars

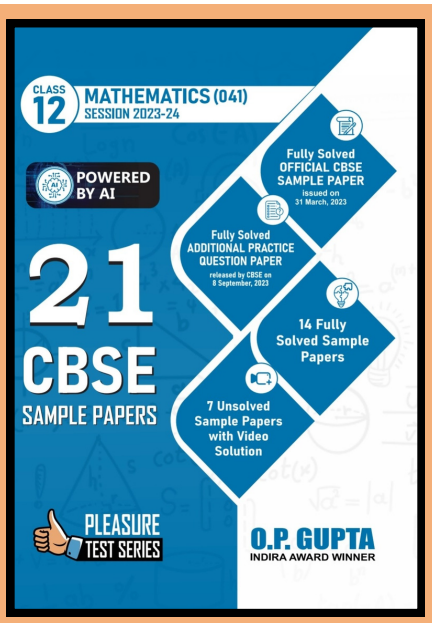
## CLICK NOW

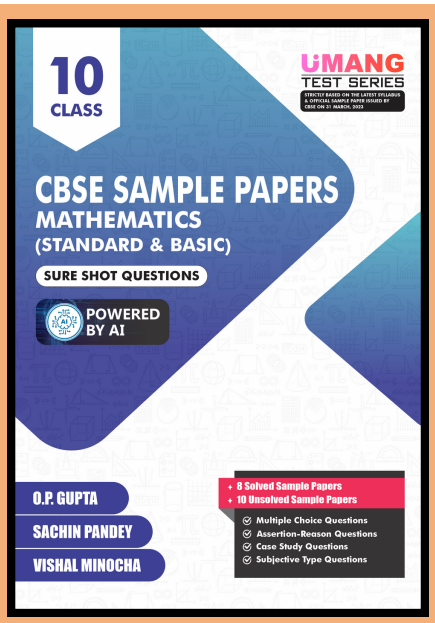
Download

**FREE PDF SAMPLE PAPERS FOR THE CLASSES XII, XI & X**

**or, just type -**

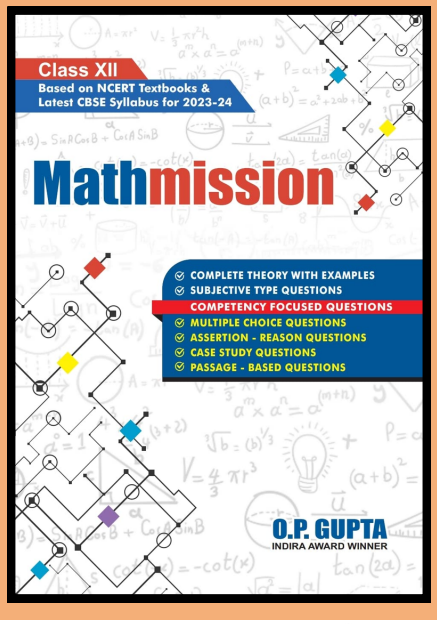
**bit.ly/m/theopgupta**

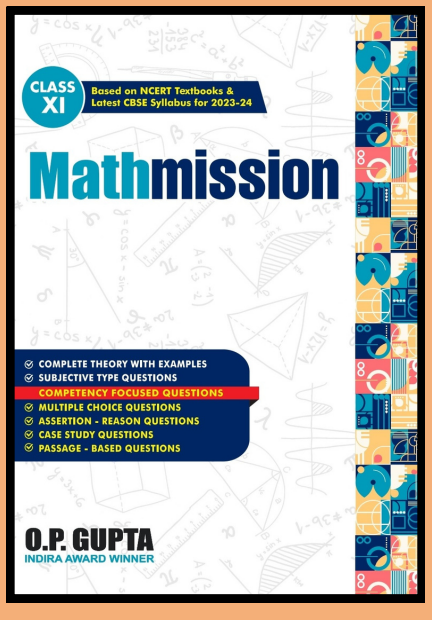


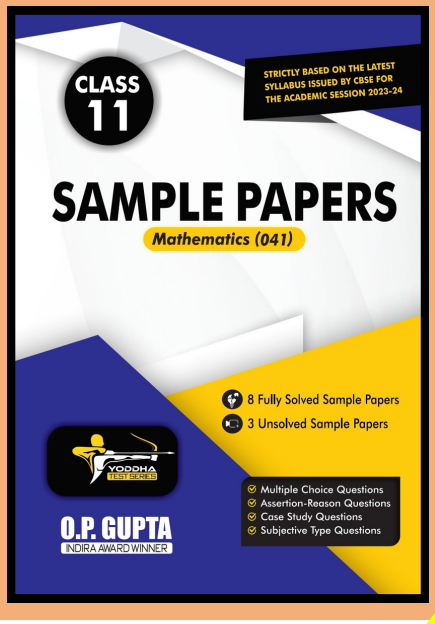




Click on the Image of any Book, to Buy it

Best Seller




**Many Direct Questions from our Books have been asked in the recent CBSE Exams**

/theopgupta /theopgupta /theopgupta /@theopgupta

For Bulk Orders at Discounted Price, contact on +91-9650350480

**Buy our books on** amazon Flipkart