UDAAN

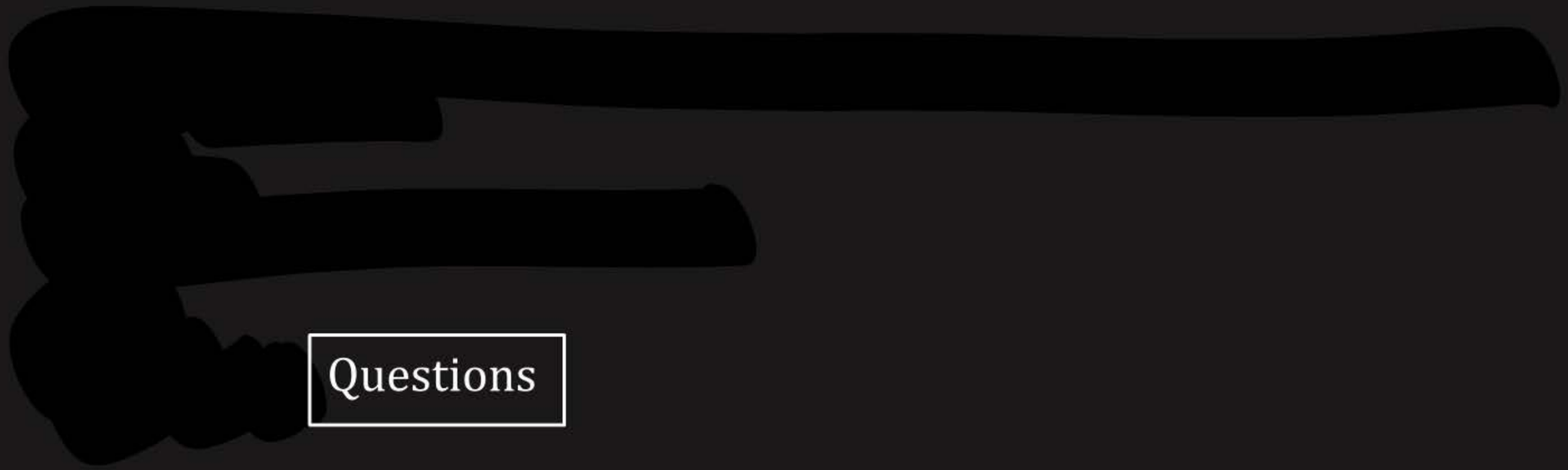
2026

Arithmetic Progression

MATHS LECTURE-2

BY-RITIK SIR

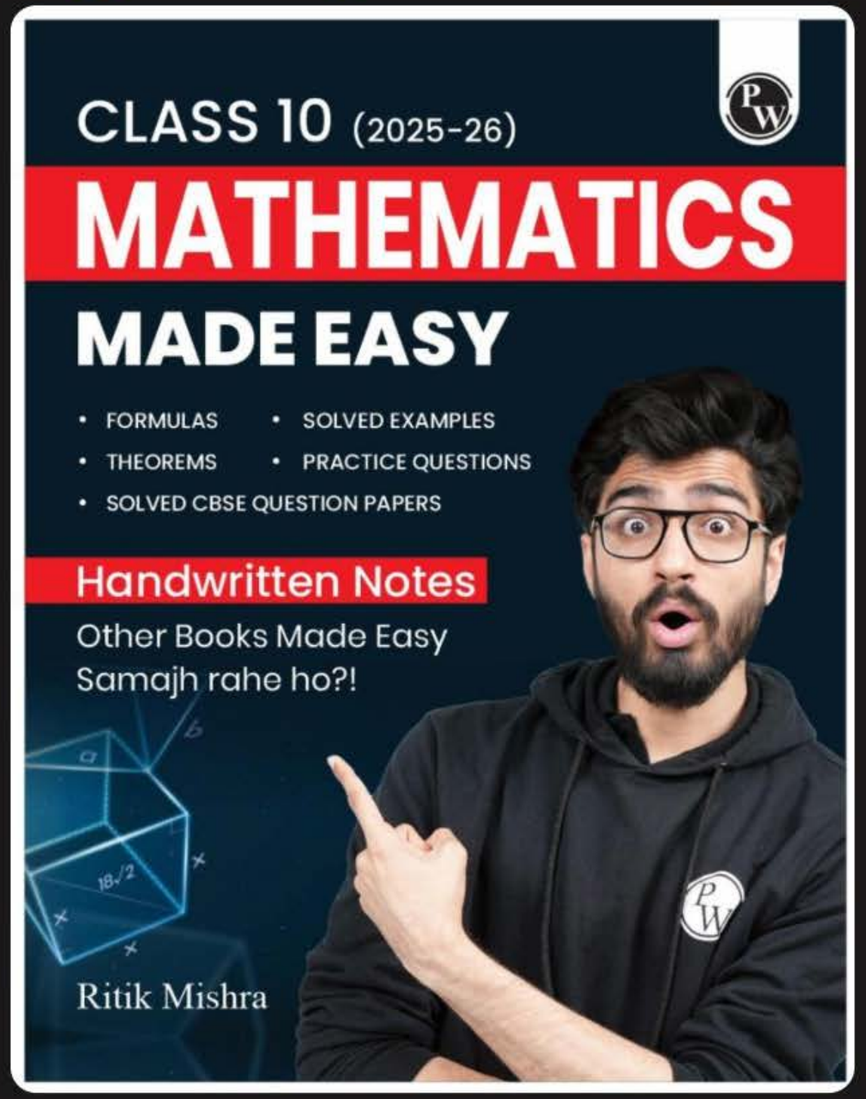
Topics *to be covered*



Questions

Available on PW Store, Amazon, Flipkart

15% off



RITIK SIR

JOIN MY OFFICIAL TELEGRAM CHANNEL

Recap

General Term of an A.P.

General term (a_n) → koi bhi term nikal sakte hain

$a, a+d, a+2d, a+3d, \ldots\ldots\ldots$

$a_n = a + (n-1)d$

Q. $a_n = 3n + 5$

$a_1 = 8$

$a_2 = 11$

$a_3 = 14$

$8, 11, 14, \ldots\ldots\ldots$

$a = 8$

$d = 3$

#Q. For the following arithmetic progression write the first term and common difference.

$\frac{1}{3}, \frac{5}{3}, \frac{9}{3}, \frac{13}{3}, \ldots$

$a = a_1 = \frac{1}{3}$

$d = \frac{5}{3} - \frac{1}{3} = \frac{4}{3}$

#Q. Write an A.P. whose first term and common difference are –1.25 and –0.25 respectively.

$a_1, a_2, a_3, a_4 \ldots\ldots$

$a, a+d, a+2d, a+3d \ldots\ldots$

$a = -1.25$

$d = -0.25$

$-1.25, -1.25 + -0.25, -1.25 + 2(-0.25), \ldots\ldots$

$\boxed{-1.25, -1.5, -1.75, -2.00, \ldots}$

#Q. Find the common difference and write the next three terms of the A.P.

3, –2, –7, –12, ...

$a_2 - a_1 = -2 - 3 = -5$

$a_3 - a_2 = -7 - -2 = -5$

$a_4 - a_3 = -12 - -7 = -5$

$d = -5$

3, -2, -7, -12, -17, -22, -27

$a_5 = ?$

$a_6 = ?$

$a_7 = ?$

$a_5 = a + 4d$

$= 3 + 4(-5)$

$= -17$

$a_6 = a + 5d$

$= 3 + 5(-5) = -22$

$a_7 = a + 6d$

$= -27$

#Q. Find the 12^{th}, 24^{th} and n^{th} term of the A.P. given by 9, 13, 17, 21, 25, ...

$a = 9, \ d = 4$

A $a_{12} = 53, a_{24} = 101, a_n = 4n+5$

B $a_{12} = 49, a_{24} = 97, a_n = 4n+1$

C $a_{12} = 57, a_{24} = 105, a_n = 4n+9$

D $a_{12} = 51, a_{24} = 99, a_n = 4n+3$

$a_{12} = a + 11d$

$= 9 + 11(4)$

$= 53$

$a_{24} = a + 23d$

$= 9 + 23(4)$

$= 9 + 92$

$= 101$

$a_n = a + (n-1)d$

$a_n = 9 + (n-1)4$

$= 8 + 4n - 4$

$= 5 + 4n$

$a_x = a + (x-1)d$

$= 8 + (x-1)4$

$= 9 + 4x - 4$

$a_x = 5 + 4x$

a_p = p^{th} term $= a + (p-1)d$

$a_q = a + (q-1)d$

q^{th} term.

$a_{p+q} = a + (p+q-1)d$

$(p+q)^{th}$ term.

$a_{100} = a + (100-1)d$

$= a + 99d$

#Q. The first term of an A.P. is –7 and the common difference 5. Find its 18^{th} term and the general term.

$a = -7, d = 5$

$a_{18} = a + 17d$

$= -7 + 17(5)$

$= -7 + 85$

$\boxed{a_{18} = 78}$

$a_n = a + (n-1)d$

$= -7 + (n-1)5$

$= -7 + 5n - 5$

$\boxed{a_n = -12 + 5n}$

A.P Palatdo

#Q. Determine the 10th term from the end of the A.P. 4, 9, 14, ..., 254.

4, 9, 14, ..., 244, 249, 254.

254, 249, 244 ..... 14, 9, 4.

$a = 254$

$d = -5$.

$a_{10} = a + 9d$

$= 254 + 9(-5)$

$= 254 - 45$

$a_{10} = 209$

A 204

B 209

C 214

D 219

2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50.

8th.

Q. Tell me 8th term from the end.

38

#Q. Find the 6^{th} term from the end of the A.P. 17, 14, 11, ..., –40.

CBSE 2005

17, 14, 11 -- , -34, -37, -40

-40, -37, -34, ------ 11, 14, 17.

$a = -40$

$d = -37 - -40 = 3$

$a_6 = a + 5d$

$= -40 + 5(3)$

$= -40 + 15$

$a_6 = -25$

A –15

B –25

C –8

D NOTA

Konsi term = ?

#Q. Which term of the sequence −1, 3, 7, 11, ... is 95?

A. 20^{th}

B. 23^{rd}

C. 25^{th}

D. 27^{th}

let $a_n = 95$.

$a + (n-1)d = 95$

$-1 + (n-1)4 = 95$

$(n-1)4 = 96$

$n-1 = \frac{96}{4}$

$n-1 = 24$

$n = 25$

$\therefore a_{25} = 95$

2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50.

Q Which term of the A.P is 34?

Ans: 9

#Q. How many terms are there in the sequence 3, 6, 9, 12, ..., 111?

position pata karlo.

A 35

B 36

C 37

D 38

let, $a_n = 111$

$a + (n-1)d = 111$

$3 + (n-1)3 = 111$

$(n-1)3 = 108$

$n-1 = \frac{108}{3}$

$n-1 = 36$

$n = 37$

$\therefore a_{37} = 111$

last term.

total terms = 37.

#Q. Which term of the A.P. –7, –12, –17, –22, ... will be –82? Is –100 any term of the A.P.?

CBSE 2019

$a = -7$

$d = a_2 - a_1 = -12 - -7 = -5$

Let $a_n = -82$

$a + (n-1)d = -82$

$-7 + (n-1)(-5) = -82$

$(\quad) - 5 = -75$

$\quad) = 75/5$

$n - 1 = 15$

$n = 16$

$\Rightarrow a_{16} = -82$

Let, $a_p = -100$

$a + (p-1)d = -100$

$-7 + (p-1)(-5) = -100$

$(p-1) - 5 = -93$

$p - 1 = 93/5$

$p = 93/5 + 1$

$p = 98/5$

this is not possible.

$\therefore$ –100 is not a term of A.P.

#Q. Is –150 a term of the A.P. 11, 8, 5, 2, ...?

CBSE 2017

11, 8, 5, 2, -1, -4, -7, -10,
-13, -16, -19, -22, -25 ....
. . . . . .
. . . . . .

Let $a_n = -150$

$a + (n-1)d = -150$

$11 + (n-1)(-3) = -150$

$(n-1)(-3) = -161$

$(n-1) = \frac{-161}{-3}$

$n = \frac{161}{3} + 1$

$n = \frac{164}{3}$

this is not possible.

$\therefore$ -150 is not a term of the A.P.

#Q. If the 5^{th} term of an A.P. is 31 and 25^{th} term is 140 more than the 5^{th} term, find the A.P. → terms → a, d

CBSE 2015

$a_5 = 31$

$a + 4d = 31$ ①

$a_{25} = 140 + a_5$

$a + 24d = 140 + 31$

$a + 24d = 171$ ②

① − ②

$a + 4d = 31$

$a + 24d = 171$

$-20d = -140$

$d = \frac{140}{20}$

$d = 7$

$a + 4d = 31$

$a + 4(7) = 31$

$a = 3$

$a = 3, d = 7$.

$\therefore$ A.P $= a, a+d, a+2d, a+3d \ldots$

$3, 10, 17, 24 \ldots\ldots\ldots$

#Q. Find whether 0 (zero) is a term of the A.P. 40, 37, 34, 31, ...

CBSE 2014

let, $a_n = 0$

$a + (n-1)d = 0$

$40 + (n-1)(-3) = 0$

$(n-1)(-3) = -40$

$n-1 = \frac{-40}{-3}$

$n-1 = \frac{40}{3}$

$n = \frac{40}{3} + 1$

$n = \frac{43}{3}$

this is not possible.

∴ '0' is not a term of the A.P.

#Q. If the seventh term of an A.P. is 1/9 and its ninth term is 1/7, find its $(63)^{rd}$ term.

CBSE 2014

$a_7 = 1/9$ $a_9 = 1/7$

$a_{63} = a + 62d = ?$

$a + 6d = 1/9$

$a + 8d = 1/7$

$-2d = \frac{1}{9} - \frac{1}{7}$

$-2d = \frac{7-9}{63}$

$-2d = \frac{-2}{63}$

$d = \frac{-2}{63 \times -7}$

$\boxed{d = 1/63}$

$a + 6d = 1/9$

$a + \frac{2}{\cancel{6}}\left(\frac{1}{\cancel{63}_{21}}\right) = 1/9$

$a = \frac{1}{9} - \frac{2}{21}$

$a = \frac{7-6}{63}$

$\boxed{a = 1/63}$

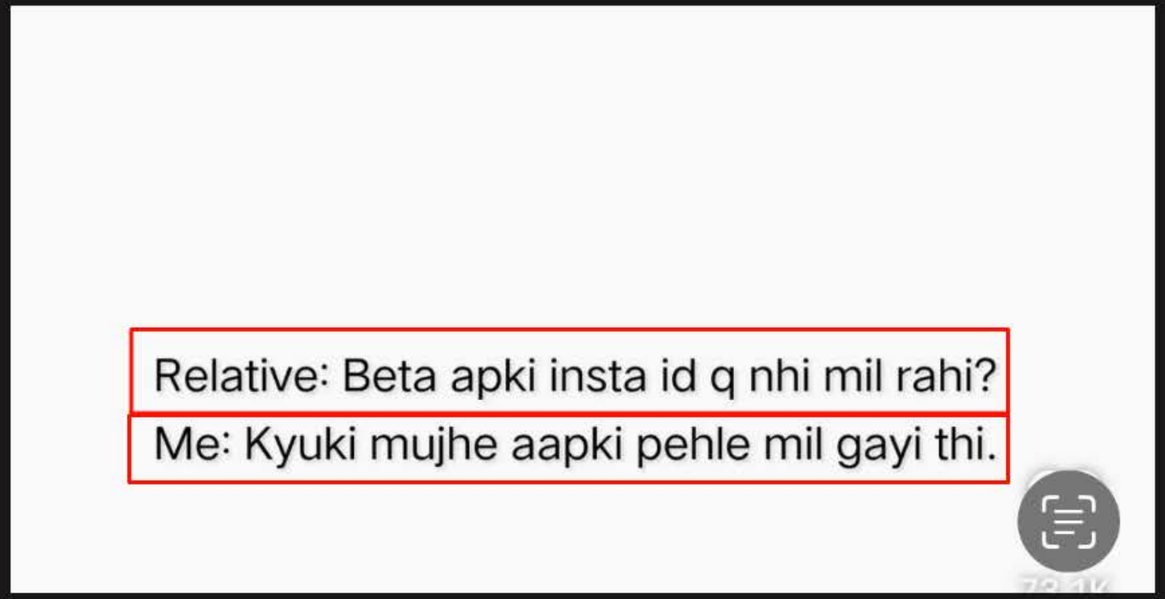
$$a_{63} = a + 62d$$

$$= \frac{1}{63} + 62\left(\frac{1}{63}\right)$$

$$= \frac{1 + 62}{63}$$

$$= \frac{63}{63}$$

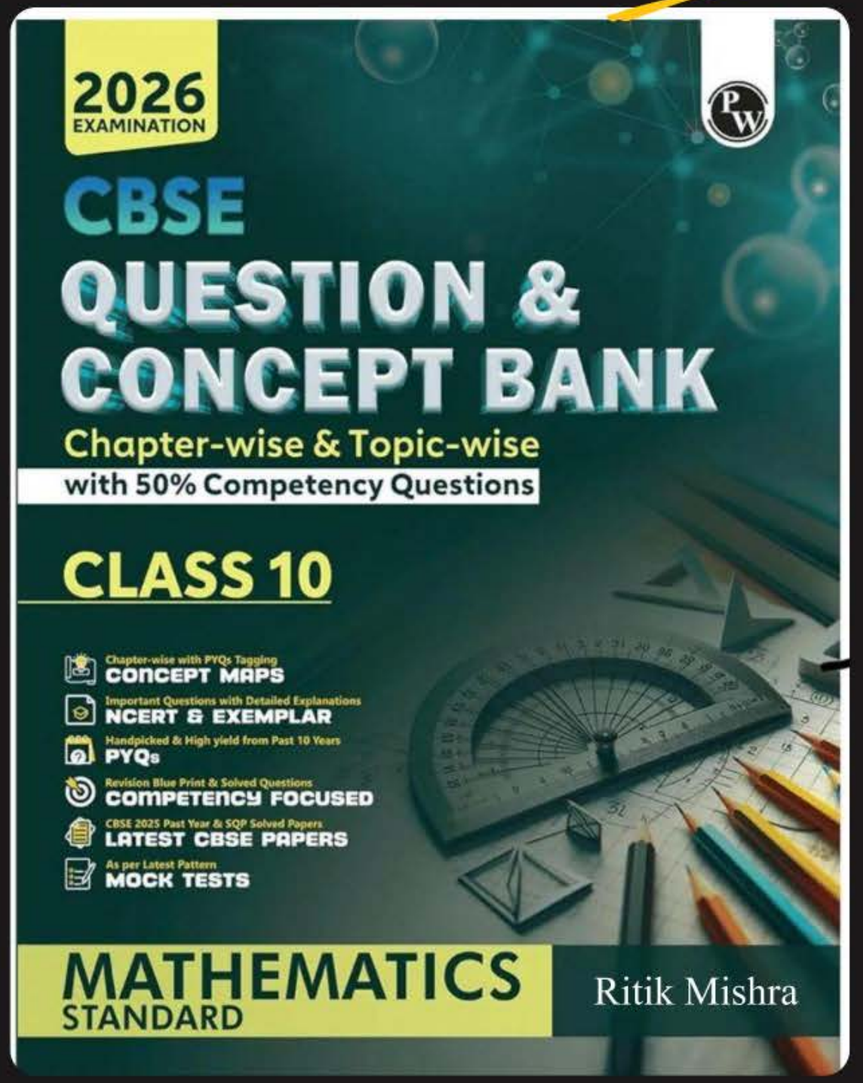
$$a_{63} = 1$$ Ans//


Relative: Beta apki insta id q nhi mil rahi?
Me: Kyuki mujhe aapki pehle mil gayi thi.


WORK HARD
DREAM BIG
NEVER GIVE UP

kal bhi class hai !!

5pm




Thank You Babuaas❤️🫂
Work Hard
Dream Big
Never Give Up