AP & GP
Set - 1

Notation in Arithmetic Progression

In AP, we will come across some main terms, which are denoted as:

- First term (a)
- Common difference (d)
- nth Term (an)
- Sum of the first n terms (Sn)

All three terms represent the property of Arithmetic Progression. We will learn more about these three properties in the next section.

First Term of AP

The AP can also be written in terms of common differences, as follows;
a, a + d, a + 2d, a + 3d, a + 4d, ……. ,a + (n – 1) d

where “a” is the first term of the progression.
Common Difference in Arithmetic Progression

In this progression, for a given series, the terms used are the first term, the common difference and nth term. Suppose, a1, a2, a3, ……., an is an AP, then; the common difference “ d ” can be obtained as;
d = a2 – a1 = a3 – a2 = ……. = an – an – 1

nth Term of an AP

The formula for finding the n-th term of an AP is:

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

Sum of N Terms of AP

For an AP, the sum of the first n terms can be calculated if the first term, common difference and the total terms are known. The formula for the arithmetic progression sum is explained below:

Consider an AP consisting “n” terms.

$S_n = n/2[2a + (n - 1) \times d]$

General Form of Geometric Progression

The general form of Geometric Progression is:

a, ar, ar2, ar3, ar4,…, arn-1

Where,

a = First term

r = common ratio

arn-1 = nth term

General Term or Nth Term of Geometric Progression

Let a be the first term and r be the common ratio for a Geometric Sequence.

Then, the second term, $a_2 = a \times r = ar$

Third term, $a_3 = a_2 \times r = ar \times r = ar^2$

Similarly, nth term, $a_n = ar^{n-1}$

Therefore, the formula to find the nth term of GP is:
$a_n = t_n = ar^{n-1}$

Sum of N term of GP

Suppose a, ar, ar2, ar3,……arn-1 is the given Geometric Progression.

Then the sum of n terms of GP is given by:

$S_n = a + ar + ar2 + ar3 + \ldots + arn\text{-}1$

The formula to find the sum of n terms of GP is:
$S_n = a[(rn – 1)/(r – 1)]$ if $r \neq 1$ and $r > 1$

AP AND GP(ASSIGNMENT :-1)

Q 1. How many terms are there in the AP 20, 25, 30,…130.

(a) 22

(b) 23

(c) 21

(d) 24

(e) 25

AP AND GP(ASSIGNMENT :-1)

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(a) 22

(b) 23

(c) 21

(d) 24

(e) 25

AP AND GP(ASSIGNMENT :-1)

Q 2. Bobby was appointed to AMS Career in the pay scale of Rs. 7000-500-12,500. Find how many years he will take reach the maximum of the scale.

(a) 11 years

(b) 10 years

(c) 9 years

(d) 8 years

(e) None of these

AP AND GP(ASSIGNMENT :-1)

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(d) 8 years

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 3. Find the 1^{st} term of an AP whose 8^{th} and 12^{th} terms are respectively 39 and 59.

(a) 5

(b) 6

(c) 4

(d) 3

(e) 7

AP AND GP(ASSIGNMENT :-1)

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(a) 5

(b) 6

(c) 4

(d) 3

(e) 7

AP AND GP(ASSIGNMENT :-1)

Q 4. There is an AP 1, 3,5… which term of this AP is 55?

(a) 27^{th}

(b) 26^{th}

(c) 25^{th}

(d) 28^{th}

(e) 29^{th}

AP AND GP(ASSIGNMENT :-1)

Q 4. There is an AP 1, 3,5… which term of this AP is 55?

(a) 27^{th}

(b) 26^{th}

(c) 25^{th}

(d) 28^{th}

(e) 29^{th}

AP AND GP(ASSIGNMENT :-1)

Q 5. Find the lowest number in an AP such that the sum of all the terms is 105 and greatest term is 6 times the least.

(a) 5

(b) 10

(c) 15

(d) 20

(e) (a), (b) & (c)

AP AND GP(ASSIGNMENT :-1)

Q 5. Find the lowest number in an AP such that the sum of all the terms is 105 and greatest term is 6 times the least.

(a) 5

(b) 10

(c) 15

(d) 20

(e) (a), (b) & (c)

AP AND GP(ASSIGNMENT :-1)

Q 6. Find the 15^{th} term of the sequence 20, 15, 10,…

(a) -45

(b) -55

(c) -50

(d) 0

(e) -45

AP AND GP(ASSIGNMENT :-1)

Q 6. Find the 15^{th} term of the sequence 20, 15, 10,…

(a) -45

(b) -55

(c) -50

(d) 0

(e) -45

AP AND GP(ASSIGNMENT :-1)

Q 7. A sum of money kept in a bank amounts to Rs. 1240 in 4 years and Rs. 1600 in 10 years at Interest. Find the sum.

(a) Rs. 800

(b) Rs. 900

(c) Rs. 1150

(d) Rs. 1000

(e) Rs. 1200

AP AND GP(ASSIGNMENT :-1)

Q 7. A sum of money kept in a bank amounts to Rs. 1240 in 4 years and Rs. 1600 in 10 years at Interest. Find the sum.

(a) Rs. 800

(b) Rs. 900

(c) Rs. 1150

(d) Rs. 1000

(e) 1200

AP AND GP(ASSIGNMENT :-1)

Q 8. A number 15 is divided into three parts which are in AP and the sum of their squares is 83. Find the smallest number.

(a) 5

(b) 3

(c) 6

(d) 8

(e) 7

AP AND GP(ASSIGNMENT :-1)

Q 8. A number 15 is divided into three parts which are in AP and the sum of their squares is 83. Find the smallest number.

(a) 5

(b) 3

(c) 6

(d) 8

(e) 7

AP AND GP(ASSIGNMENT :-1)

Q 9. The sum of first 16 terms of an AP whose first term and third terms are 5 and 15 respectively is

(a) 600

(b) 765

(c) 640

(d) 680

(e) 690

AP AND GP(ASSIGNMENT :-1)

Q 9. The sum of first 16 terms of an AP whose first term and third terms are 5 and 15 respectively is

(a) 600

(b) 765

(c) 640

(d) 680

(e) 690

AP AND GP(ASSIGNMENT :-1)

Q 10. A boy agrees to work at the rate of one rupee on the first day, two rupees on the second day, four rupees on the third day and so on. How much will the boy get if he starts working on the 1^{st} of February and finishes on the 20^{th} of February?

(a) 2^{20}

(b) $2^{20}-1$

(c) $2^{19}-1$

(d) 2^{19}

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 10. A boy agrees to work at the rate of one rupee on the first day, two rupees on the second day, four rupees on the third day and so on. How much will the boy get if he starts working on the 1st of February and finishes on the 20th of February?

(a) 2^{20}

(b) $2^{20}-1$

(c) $2^{19}-1$

(d) 2^{19}

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 11. How many natural numbers between 300 to 500 are multiples of 7?

(a) 29

(b) 28

(c) 27

(d) 30

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 11. How many natural numbers between 300 to 500 are multiples of 7?

(a) 29

(b) 28

(c) 27

(d) 30

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 12. Find the sum of all numbers from 10 to 50 excluding all those numbers which are divisible by 8.

(a) 1070

(b) 1220

(c) 1320

(d) 1160

(e) 1060

AP AND GP(ASSIGNMENT :-1)

Q 12. Find the sum of all numbers from 10 to 50 excluding all those numbers which are divisible by 8.

(a) 1070

(b) 1220

(c) 1320

(d) 1160

(e) 1060

AP AND GP(ASSIGNMENT :-1)

Q 13. The sum of the first four terms of an AP is 28 and sum of the first eight terms of the same AP is 88. Find the sum of the first 16 terms of the AP?

(a) 346

(b) 340

(c) 304

(d) 268

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 13. The sum of the first four terms of an AP is 28 and sum of the first eight terms of the same AP is 88. Find the sum of the first 16 terms of the AP?

(a) 346

(b) 340

(c) 304

(d) 268

(e) None of these

AP AND GP(ASSIGNMENT :-1)

Q 14. A and B are two numbers whose AM is 25 and GM is 7. Which of the following may be a value of A?

(a) 10

(b) 20

(c) 49

(d) 25

(e) 24

AP AND GP(ASSIGNMENT :-1)

Q 14. A and B are two numbers whose AM is 25 and GM is 7. Which of the following may be a value of A?

(a) 10

(b) 20

(c) 49

(d) 25

(e) 24

AP AND GP(ASSIGNMENT :-1)

Q 15. A man saves Rs. 100 in January 2002 and increase his saving by Rs. 50 every month over the previous month. What is annual saving for the man in the year 2002?

(a) Rs. 4200

(b) Rs. 4500

(c) 4000

(d) 4100

(e) None of these

AP AND GP(ASSIGNMENT :-1)

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THANK YOU