

Ch-8 Extra Questions

1. 4 groups in a class were asked to come up with an arithmetic progression (AP). Shown below are their responses:

Group	Arithmetic progression
M	4, 2, 0, -2, ...
N	41, 38.5, 36, 33.5, ...
O	-19, -21, -23, -25, ...
P	-3, -3, -3, -3, ...

- (a) only groups M and O (b) only groups N and O
(c) only groups M, N and O (d) all groups – M, N, O and P

2. If a_n is the n^{th} term of an arithmetic progression whose common difference is d , then which of the following statements is valid?

- (a) $a_{24} = a_1 + 24d$ (b) $a_{25} - a_2 + 24d$ (c) $a_{26} = a_2 + 24d$ (d) None of these

3. The 11th term from the end of the A.P. 10, 7, 4, ..., - 62 is

- (a) 25 (b) 30 (c) -32 (d) 35

4. The number of all two digit positive numbers divisible by 3 is

- (a) 15 (b) 30 (c) 45 (d) 60

5. Which of the following is the n^{th} term of the geometric progression 3, 6, 12, 24, ...?

- (a) $3 \cdot 2^n$ (b) $3 \cdot 2^{n+1}$ (c) $6 \cdot 2^{n-1}$ (d) $3 \cdot 2^{n-1}$

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion (A) is false, but Reason (R) is true.

6. Assertion (A): The common ratio of a geometric progression can never be zero.

Reason (R): In a geometric progression, each term is obtained by multiplying the previous term by the common ratio.

7. Assertion (A): The difference between any two consecutive terms in the sequence of numbers $\sqrt{6}$, $\sqrt{24}$, $\sqrt{54}$, $\sqrt{96}$, ... is $3\sqrt{6}$.

Reason (R): The sequence of numbers $\sqrt{6}$, $\sqrt{24}$, $\sqrt{54}$, $\sqrt{96}$, ... form an arithmetic progression.

8. In a school, students thought of planting trees in and around the school to reduce air pollution. It was decided that the number of trees that each section of each class will plant, will be the same as the class, in which they are studying, e.g., a section of Class I will plant 1 tree, a section of Class II will plant 2 trees and so on till Class XII. There are three sections of each class. Represent the sequence of trees planted from class I to XII. How many trees will be planted by the students of class X and XII?

9. The cannon fires every 2 minutes, with the first shot occurring 10 minutes after the start of the fight. Additionally, the weight of each cannonball increases by 0.5 kg with each successive shot, starting with the first ball weighing 0.5 kg.

(i) How many balls are fired after the first 30 minutes of fight?

(ii) What is the ball's weight when the 12th ball is fired?

(iii) After how much time will the ball of 10 kg be fired?

10. Find three numbers in A.P whose sum is 21 and their product is 231.
11. The sum of the first 3 terms of a geometric progression is 14, and the common ratio is 2. What is the first term?
12. The first and the last term of an A.P. are 17 and 350 respectively. If the common difference is 9 how many terms are there in the A.P.?
13. In a geometric progression, the 2nd term is 9 and the 5th term is 72. Find the first term and the common ratio.
14. The number of shapes in a fractal pattern is 2, 10, 50,..... Find the number of shapes in the 6th step.
15. Find the 6th term from the end of the GP $8, 4, 2, \dots, \frac{1}{1024}$.
16. For what values of x are the numbers $(x + 9)$, $(x - 6)$ and 4 in GP?
17. The angles of a triangle are in AP, the least being half of the greatest. Find the angles.
18. Two APs have the same common difference. The difference between their 50th terms is 200. What is the difference between their 500th terms?
19. Find the middle term of AP: 6, 13, 20, ..., 230.
20. For what value of n are the n th terms of two APs 30, 27, 24, ... and 6, 11, 16, ... equal?
21. The sum of the second and third terms of a GP is 280 and the sum of the 5th and 6th terms is 4375. Find the 4th term of GP.