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Class: X
Subject: Mathematics
Topic: Arithmetic Progression
No. of Questions: 25.

Q1. Let a sequence be defined by $a_1=3$, $a_n=3a_{n-1}+1$ for all $n>1$. Find the first four terms of the sequence.

Q2. Find the common difference and write the three next terms of the AP: 3, -2, -7, -12…

Q3. Find the 6^{th} term from the end of the AP: 17, 14, 11,…., -40. (CBSE-2005)

Q4. For what value of n is the n^{th} term of the following two AP's the same?
i) 1,7,13.19….. ii) 69, 69, 67,….. (CBSE-2006)

Q5. If the 8^{th} term of an AP is 31 and the 15^{th} term is 16 more than the 11^{th} term, find the AP. (CBSE-2006)

Q6. Which term of the AP: 5,15,25,…. will be 130 more than its 31^{st} term? (CBSE-2006)

Q7. If the 10^{th} term of an AP is 52 and 17^{th} term is 20 more than the 13^{th} term, find the AP. (CBSE-2006)

Q8. The sum of 5^{th} and 9^{th} terms of an AP is 72 and the sum of 7^{th} term and 12^{th} term is 97. Find the AP. (CBSE-2009)

Q9. If the p^{th} term of an AP is q and the q^{th} term is p, prove that its n^{th} term is (p + q – n) (CBSE-2008)

Q10. If m^{th} term of an AP ne 1/n and n^{th} term be 1/m, then show that its $(mn)^{th}$ term is 1.

Q11. If m times the m^{th} term of an AP is equal to n times its n^{th} term, show that the $(m + n)^{th}$ term of the AP is zero. (CBSE-2008)

Q12. How many numbers of two digits are divisible by 7?

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Q13. If p^{th}, q^{th} and r^{th} term of an AP are a, b, c respectively, then show that $a(q – r) + b(r – p) + c(p – q)=0$.

Q14. Jasleen saved Rs. 5 in the first week of the year and then increased her weekly savings by Rs.1.75 each week. In what week will her weekly savings be Rs.20.75?

Q15. Find 4 numbers in AP whose sum is 20 and the sum of whose squares is 120.

Q16. If the numbers a,b,c,d,e form an AP then find the value of $a – 4b + 6c – 4d + e$.

Q17. The sum of 3 numbers in AP is -3, and their product is 8. Find the numbers.

Q18. The sum of first six terms of an AP is 42. The ratio of its 10^{th} term to its 30^{th} term is 1:3. Calculate the first and the 13^{th} term of an AP. (CBSE-2009)

Q19. If nth term of an AP is (2n + 1), find the sum of first n terms of the AP. (CBSE-2005)

Q20. If S_n, the sum of first n terms of an AP is given by $S_n= 5n^2 + 3n$, then find the term. (CBSE-2009)

Q21. In an AP, the sum of first n terms is $3n^2/2 + 5n/2$. Find its 25^{th} term. (CBSE-2006)

Q22. How many terms of the series 54, 51, 48,…. Be taken so that their sum is 513? Explain the double answer. (CBSE-2005)

Q23. The sum of n, 2n, 3n terms of an AP are S_1, S_2, S_3 respectively. Prove that $S_3=3(S_2 – S_1)$.

Q24. If the sum of m terms of an AP is the same as the sum of its n terms, show that the sum of its (m + n) terms is zero.

Q25. The ratio of the sum of n terms of two AP's is (7n+1) : (4n+27). Find the ratio of their m^{th} terms.