1. Given below is the group-wise heights of children in cms in a sports academy:
   i. Group A: 131, 141, 115, 161
   ii. Group B: 119, 125, 131, 137
   iii. Group C: 102, 130, 142, 150
   iv. Group D: 105, 104,103, 101

   Which of the above groups forms an AP?

2. Determine k so that $4k + 8, 2k^2 + 3k + 6, 3k^2 + 4k + 4$ are the three consecutive terms of an A.P.
3. Write the first four terms of the AP whose first term a and common difference d are given as follows:
   i. a = 4, d = 6
   ii. a = 10, d = -3
4. Find the 16^{th} term of the AP: 3, 10, 17, 24…
5. Which term of the AP : 2, 7, 12, 17 is 67 ?
6. The 7^{th} term of an AP is -4 and its 13 th term is -16. Find the A.P.
7. Check whether -83 is a term of the AP 5,2, -1, -4…..
8. How many two- digit numbers are divisible by 6?
9. Find the 12^{th} term from the last term (towards the first term) of the AP: 21, 18, 15,…, -81.
10. For what value of n, the nth terms of two AP's, 63,65,67… and 3, 10,17,… are equal?
11. If 5 times the 5^{th} term of an AP is equal to 10 times the 10^{th} term, show that its 15^{th} term is zero.
12. Find the middle term of AP, 6, 1 3,20,…., 216.
13. Which term of the AP: 120 116, 112,…. is its first negative term?
14. If the pth, qth and rth term of an AP are x, y and z respectively, then show that $x(1 - r) + y(r - p) + z(p - q) = 0$.
15. Find the sum of the first 20 terms of the A.P. 3,15,27, 39,…
16. If the sum of the first 22 terms of an AP is – 979 and its first term is 8, find its 10^{th} term.
17. How many terms of the AP 9, 17, 2 5,… must be taken to give a sum of 636?
18. Find the sum of the first 25 terms of an A.P. where nth term is given by $a_n = 2 - 3n$.
19. The sum of the first n terms of an A.P. is $3n^2 + 4n$. Find the 25th term of this A.P.
20. The sum of the first 8 terms of an A.P. is 100 and the sum of its firs 19 terms is 551. Find the first term and the common difference of the A.P.
21. Find the sum of integers between 100 and 200 that are (i) divisible by 6 (ii) not divisible by 6.
22. Find the middle term of the sequence formed by all- digit numbers which leave remainder 3, when divided by 4. Also find the sum of all numbers on both sides of the middle term separately.
23. Nidhi saves Rs.2 on the first day of a month, Rs.4 on the second day, Rs.6 on the third day and so on. What will be her saving in the month of February if it is a leap year?

24. The sum of the first n terms of three A.P.'s are S_p S_2 and S_3 . The first term of each is 5 and their common differences are 2,4 and 6 respectively. Prove that $S_1 + S_3 = 2S_2$.
25. The ratio of the sum of the first m and n terms of an A.P. is $m^2 : n^2$. Show that the r atio of its mth and nth terms is (2m – 1) : (2n – 1).
26. A sum of Rs.700 is to be used to give seven cash prizes to students of a school for their overall academic performance, If each prize is Rs.20 less than its preceding prize, find the value of each of the prizes.
27. Determine whether the given sequence is geometric or not. If it is, find the common ratio.
    i. -1, 6, -36, 216,…
    ii. 4,16, 36,64,….
28. Find the nth term of the G.P. -3, -15, -75, -375,… and hence its 7^{th} term.
29. If the nth term of a G.P. is $2\times \left(\frac{1}{4}\right)^{n-1}$, find the first five terms of the G.P.
30. Which the term of the sequence 6, 2, $\frac{2}{3}$, … is $\frac{2}{243}$.
31. Find the G.P. whose fourth term is 24 and seventh term is 192.
32. Find the first term and the number of terms in a G.P. if the fourth, seventh and last terms are 10, 80, and 2560 respectively?
33. If the pth, qth and rth terms of a G.P. are x, y, and z respectively, prove that $x^{q-r} \cdot y^{r-p} \cdot z^{p-q} = 1$.
34. Find the sum of the G.P. 4,2, 1 … to 10 terms.
35. How many terms of the G.P. 5, 20, 80 … must be taken to make the sum 6825?
36. If the third term of a G.P. is $\frac{5}{2}$ and its eight term is $\frac{5}{64}$, then find the sum of its first 10 terms.
37. In a G.P. , the ratio of the sum of the first three terms to that of first six terms is 125 : 152. Find the common ration of the G.P.

1. Is the Sequence 12, 8, 4, 0, …….. an A.P ?
   If yes; state its first term and common difference.
2. For the A.P. 7, 15, 23, 31, ……., write the first term, common difference and text two terms.
3. Find the A.P. whose n^{th} term is 2n – 3.
4. Find the n^{th} term and the 20th term of the sequence : 9, 5, 1, -3, …… .
5. Is 205 a term of the sequence 8, 12, 16, 20, …….. ?
6. Find the A.P. whose second term is 12 and 7th term exceeds the 4th by 15.
7. Find the A.P. whose 6th term = 5 and 10th term = 9.
8. Which term of A.P. 4·2, 4·7, 5·2, 5·7, ……., is 8·7 ?
9. Find the 12th term from the end in A.P. 13, 18, 23, ……., 158.
10. If 8 times the eighth term of an A.P. is equal to 15 times its fifteenth term, find its 23th term.
11. Find the number of all natural numbers between 20 and 80, which are divisible by 3.
12. How many whole numbers, each divisible by 7, lie between 200 and 500?
13. Which term of the A.P. 4, 11, 18, 25, …….. is 42 more than its 25th term ?
14. Find the sum of the first 20 terms of the A.P. : 5, 8, 11, 14, …….. .
15. Find the sum of first ten terms of the A.P. : 8, 4, 0, -4, -8, …… .
16. Find the sum of the first 40 terms of the A.P. whose 4th term is 8 and 6th term is 14.
17. For the A.P. : 10, 15, 20, ……., 195; find :
    i. The number of terms in the above A.P.
    ii. The sum of all its terms.
18. Find the sum of first 16 terms of a sequence whose n^{th} term is given by t_n = 5n – 3, where n is a natural number.
19. How many terms of the A.P. 43, 39, 35, ……. be taken so that their sum is 252 ?
20. How many terms of the A.P. 20, $19\frac{1}{3}$, $18\frac{2}{3}$, ……. must be taken so that their sum is 300 ?
21. The sum of three terms in A.P. is 33 and their product is 1155. Find the terms.
22. If a, b and c are in A.P., show that : (b + c), (c + a) and (a + b) are also in A.P.

23. A sum of ₹ 8,000 is invested at 10% simple interest per annum. Calculate the interest at the end of each year.

    Does the Sequence of interests at the end of consecutive years form an A.P. ? If yes, write its first term and the common difference.

24. In a school, students stand in rows. If 30 students stand in the first row, twenty-seven in the second row, twenty four in the third row and six in the last row; find how many rows are there and what is the total number of students ?