INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2023-24

CLASS: X SUBJECT: MATHEMATICS DATE: 04-09-2023

LESSON:5 –ARITHMETIC PROGRESSION

Level 1:

1. The common difference of AP $\frac{1}{p}$, $\frac{1-p}{p}$, $\frac{1-2p}{p}$ ……. (Ans:d= -1)
2. A sequence is defined by a_n= $n^3-6n^2+11n-6$. Find the first 3 terms of the sequence. (Ans: $a_1=a_2=a_3=0$)
3. The value of x for which 2x, x+ 10 and 3x + 2 are the three consecutive terms of an AP (Ans:6)
4. What is the next term of an A.P √7, √28, √63 ……. (Ans: √112)
5. What is the common difference of an A.P in which a_{18}-a_{14}=32 (Ans: d=8)
6. Show that $(a-b)^2$, (a^2+b^2), $(a+b)^2$ are in AP
7. The 4^{th} term from the end of the AP -11, -8, -5, ……49 is (Ans:40)
8. The sum of first n terms of an AP is $5n-n^2$. Find the n^{th}term of the AP (Ans:a_n= -2(n-3))
9. In an AP of 50 terms, the sum of the first 10 terms is 210 and the sum of its last 15 terms is 2565.Find the AP (Ans: 3,7,11,…….)
10. The sum of the first three terms of an AP is 33. If the product of first and third term exceeds the second term by 29, find the AP (Ans: 2,11,20 OR 20,11,2)
11. The sum of the 5^{th}& 9^{th} terms of an AP is 72 and the sum of 7^{th}&12^{th}term is 97. Find the AP (Ans: 6,11,16,21……..)
12. If the p^{th}term of an AP is q and the q^{th}term of an AP is p. Prove that its n^{th} term is (p +q -n)
13. If m times the m^{th}term of an AP is equal to the n times of its n^{th}term. Show that the $(m+n)^{th}$term of the AP is zero

Level 2:

14. Which term of the AP 20,$19\frac{1}{4}$, $18\frac{1}{2}$,$17\frac{3}{4}$,……is the first negative term?
(Ans: 28^{th}term)

15. Find the sum of all 11 terms of an AP, whose middle most term is 30
(Ans: 330)

16. If the ratio of the 11^{th}term of an AP to its 18^{th}term is 2:3, find the ratio of the sum of first 5 terms to the sum of its first 10 terms (Ans: 6:17)

17. If the m^{th}term of an AP is $\frac{1}{n}$ and the n^{th}term is $\frac{1}{m}$ .Show that the sum of mn terms is $\frac{1}{2}$(mn+1)

18. The ratio of the sum of m & n terms of an AP is m^2: n^2. Show that the ratio of the m^{th}& n^{th}term is(2m-1) : (2n-1)

19. Solve the equation 1+4+7+10…….x = 287 (Ans: x=40)

****