1. Each of the numbers in the list 100, 70, 40, 10 ……. Is called a ……

A. Term
B. Difference
C. Factor

2. A list of numbers in which each term is obtained by adding a fixed number to the preceding term except the first term is called an …….

A. Geometric Progression
B. Arithmetic progression
C. Harmonic Progression

3. The common difference of the AP 6, 3, 0, -3 …….. is ……..

A. 3
B. -3
C. 0

4. Which of the following list of numbers does not form an AP?
A. 4, 10, 16, 22 ……..
B. 1, -1, -3, -5……...
C. -2, 2, -2, 2, -2……

5. The n th term of the AP with first term ‘a’ and common difference ‘d’ is given by ————————-

A. a + (n-1) d
B. a – (n-1) d
C. a + (n-1) d

6. The 10th term of the AP 2, 7, 12 ……..is ————–?

A. 45
B. 47
C. 49

7. Which term of the AP 21, 18, 15 …….. is -81?

A. 33
B.35
C. 37

8. How many two digit numbers are divisible by 3?

A. 30
B. 60
C. 90

9. The sum of first n positive integers is given by ————–

A. n (n-1)/2
B. n (n+1)/2
C. n (n-1)/4

10. If a, b, c are in AP, then b = ———— and is called the arithmetic mean of a and c.

A. (a + c)/2
B. (a – c)/2
C. (a + b) /2

11. The sum of the first 1000 positive integers is ————-

A. 5050
B. 500500
C. 500050

12. The list of numbers -15, -10, -5, 0, 5 …….. is ————

A. an AP with d = 5
B. an AP with d = -5
C. an AP with d = 0

13. In an AP if d = -5, n = 3 and nth term = 0 then a is ————-

A. 10
B. -10
C. 0

14. The sum of the first 22 terms of the AP 8, 3, -2 …… is ————-

A. -989
B. -979
C. 979

15. If ‘l’ is the last term of the finite AP, then the sum of all terms of the AP is given by ———————

A. S = n (a + l)/2
B. S = n (a – l)/2
C. S = n (a +l)/4

ANSWERS:
1. Term
2. Arithmetic Progression
3. -3
4. -2, 2, -2, 2, -2……
5. a + (n-1) d
6. 47
a + (n -1) d = 2 + (10 -1) 5 = 2 + 9 x 5 = 2 + 45 = 47
7. 35
nth term = a + (n-1) d
-81 = 21 + (n-1) (-3)
-81 = 21 + (-3n) +3
-81 = 24 -3n
-81 – 24 = -3n
-105 = -3n
n = 105/3 = 35
8. 30
The list of two digit numbers divisible by 3 is 12, 15, 18…… 99
Here a = 12, d = 3, nth term = 99
99 = 12 + (n-1) 3
99 = 12 + 3n -3
99 – 12 + 3 = 3n
90 = 3n
n = 90/3 = 30
9. n (n+1)/2
10. (a + c)/2
11. 500500
12. an AP with d = 5

13. 10
nth term = a + (n-1)d
0 = a + (3 -1) (-5)
0 = a + (-10)
a = 10
14. -979
S = n/2 (2a + (n-1) d)
= 22/2 (2 x 8 + (22-1) (-5))
= 11(16 + -105)
= 11 x (-89)
= -979
15. S = n (a + l)/2

Class 10 Maths MCQs Chapter 5 Arithmetic Progressions

1. The n^{th} term of an A.P. is given by $a_n = 3 + 4n$. The common difference is
(a) 7
(b) 3
(c) 4
(d) 1

2. If p, q, r and s are in A.P. then r – q is
(a) s – p
(b) s – q
(c) s – r
(d) none of these

3. If the sum of three numbers in an A.P. is 9 and their product is 24, then numbers are
(a) 2, 4, 6
(b) 1, 5, 3
(c) 2, 8, 4
(d) 2, 3, 4

4. The $(n - 1)^{th}$ term of an A.P. is given by 7,12,17, 22,… is
(a) 5n + 2
(b) 5n + 3
(c) 5n – 5
(d) 5n – 3

5. The n^{th} term of an A.P. 5, 2, -1, -4, -7 … is
(a) 2n + 5
(b) 2n – 5
(c) 8 – 3n
(d) 3n – 8

6. The 10^{th} term from the end of the A.P. -5, -10, -15,…, -1000 is
(a) -955
(b) -945
(c) -950
(d) -965

7. Find the sum of 12 terms of an A.P. whose nth term is given by $a_n = 3n + 4$
(a) 262
(b) 272
(c) 282
(d) 292

8. The sum of all two digit odd numbers is
(a) 2575
(b) 2475
(c) 2524
(d) 2425

9. The sum of first n odd natural numbers is
(a) $2n^2$
(b) $2n + 1$
(c) $2n – 1$
(d) n^2

10. If $(p + q)^{th}$ term of an A.P. is m and $(p - q)^{tn}$ term is n, then pth term is

(a) mn **(b)** $\sqrt{mn}$

(c) $\frac{1}{2}(m - n)$ **(d)** $\frac{1}{2}(m + n)$

11. If a, b, c are in A.P. then $\frac{a-b}{b-c}$ is equal to

(a) 1 **(b)** $\frac{b}{a}$

(c) $\frac{a}{c}$ **(d)** $\frac{c}{a}$

12. The number of multiples lie between n and n^2 which are divisible by n is
(a) n + 1
(b) n
(c) n – 1
(d) n – 2

13. If a, b, c, d, e are in A.P., then the value of a – 4b + 6c – 4d + e is
(a) 0
(b) 1
(c) -1.
(d) 2

14. The next term of the sequence

$$\frac{1}{1+\sqrt{x}}, \frac{1}{1-x}, \frac{1}{1-\sqrt{x}} \text{ is } (x \neq 1).$$

(a) $1+2\sqrt{x}$ (b) $1-2\sqrt{x}$

(c) $\frac{1-2\sqrt{x}}{1-x}$ (d) $\frac{1+2\sqrt{x}}{1-x}$

15. n^{th} term of the sequence a, a + d, a + 2d,… is
(a) a + nd
(b) a – (n – 1)d
(c) a + (n – 1)d
(d) n + nd

16. The 10th term from the end of the A.P. 4, 9,14, …, 254 is
(a) 209
(b) 205
(c) 214
(d) 213

17. If $2x, x + 10, 3x + 2$ are in A.P., then x is equal to
(a) 0
(b) 2
(c) 4
(d) 6

18. The sum of all odd integers between 2 and 100 divisible by 3 is
(a) 17
(b) 867
(c) 876
(d) 786

19. If the numbers a, b, c, d, e form an A.P., then the value of $a - 4b + 6c - 4d + e$ is
(a) 0
(b) 1
(c) -1
(d) 2

20. If 7 times the 7^{th} term of an A.P. is equal to 11 times its 11^{th} term, then 18^{th} term is
(a) 18
(b) 9

(c) 77
(d) 0

21. If p, q, r are in AP, then $p^3 + r^3 - 8q^3$ is equal to
(a) 4pqr
(b) -6pqr
(c) 2pqr
(d) 8pqr

22. In an AP, if a = 3.5, d = 0, n = 101, then a will be [NCERT Exemplar Problems]
(a) 0
(b) 3.5
(c) 103.5
(d) 104.5

23. The list of numbers -10, -6, -2, 2, … is [NCERT Exemplar Problems]
(a) an AP with d = -16
(b) an AP with d = 4
(c) an AP with d = -4
(d) not an AP

24. Two APs have the same common difference. . The first term of one of these is -1 and that of the other is -8. Then the difference between their 4th terms is [NCERT Exemplar Problems]
(a) -1
(b) -8
(c) 7
(d) -9

25. In an AP, if d = -2, n = 5 and an = 0, the value of a is
(a) 10
(b) 5
(c) -8
(d) 8

26. If the common difference of an AP is 3, then $a_{20} - a_{15}$ is
(a) 5
(b) 3
(c) 15
(d) 20

27. The next term of the AP $\sqrt{18}, \sqrt{50}, \sqrt{98}, \ldots\ldots\ldots$ is
(a) $\sqrt{146}$
(b) $\sqrt{128}$

(c) √162
(d) √200

28. The common difference of the AP

$$\frac{1}{p}, \frac{1-p}{p}, \frac{1-2p}{p}, \ldots \text{ is}$$

(a) p
(b) -p
(c) -1
(d) 1

29. If the n^{th} term of an AP is (2n +1), then the sum of its first three terms is
(a) 6n + 3
(b) 15
(c) 12
(d) 21

30. An AP consists of 31 terms. If its 16th term is m, then sum of all the terms of this AP is
(a) 16 m
(b) 47 m
(c) 31 m
(d) 52 m

31. The first term of an AP of consecutive integers is $p^2 + 1$. The sum of $2p + 1$ terms of this AP is
(a) $(p + 1)^2$
(b) $(2p + 1)(p + 1)^2$
(c) $(p+1)^3$
(d) $p^3 + (p + 1)^3$

32. If the sum of first n terms of an AP is $An + Bn^2$ where A and B are constants, the common difference of AP will be
(a) A + B
(b) A – B
(c) 2A
(d) 2B

33. If $p – 1, p + 3, 3p – 1$ are in AP, then p is equal to _____ .

34. Write down the first four terms of the sequences whose general terms are
(i) $T_n = 2n + 3$
(ii) $T_n = 3^{n+1}$
(iii) $T_1 = 2, T_n = T_{n-1} + 5, n \geq 2$

35. Find:
The 10th term of 10.0, 10.5, 11.0, 11.5, …..

36. In an A.P., if the common difference (d) = – 4 and the seventh term (a_7) is 4, then find the first term. [CBSE 2018]

37. Write the n^{th} term of the A.P. [Delhi 2017 (C)]

$$\frac{1}{m}, \frac{1+m}{m}, \frac{1+2m}{m}, \ldots$$ **[Delhi 2017 (C)]**

38. Which term of the AP 21, 18, 15, … , is zero?

39. For what value ofp, are 2p+ 1, 13, 5p – 3 three consecutive terms of an AP?

40. What is the common difference of an A.P. in which $a_{21} - a_7 = 84$? [AI 2017]

41. The first term of an AP is p and its common difference is q. Find its 10th term.

42. Which term of the AP 14, 11, 8, ….is -1?

43. Write the next two terms of the AP: 1,-1, -3, -5, …

44. If $a_n = n(n-3)n+4$, then find 18th term of this sequence.

45. If the first term of an AP is 2 and common difference is 4, then sum of its first 40 terms is _____ .

46. Three numbers in an AP have sum 24. Its middle term is _____ .

47. The value of the expression 1 – 6 + 2 – 7 + 3 – 8 + ….. to 100 terms is _____ .

48. If the sum of first m terms of an AP is $2m^2 + 3m$, then what is its second term?

49. If the sum of first p terms of an AP is $ap^2 + bp$, find its common difference.

50. If sum of first n terms of an AP is $2n^2 + 5n$. Then find S_{20}.