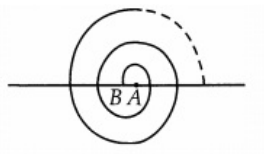
CBSE Test Paper 05

Chapter 5 Arithmetic Progression

1. The sum of the first 15 multiples of 8 is **(1)**
   a. 900
   b. 960
   c. 1000
   d. 870
2. If the angles of a right angled triangle are in A.P. then the angles of that triangle will be **(1)**
   a. $45^\circ, 45^\circ, 90^\circ$
   b. $30^\circ, 60^\circ, 90^\circ$
   c. $40^\circ, 50^\circ, 90^\circ$
   d. $20^\circ, 70^\circ, 90^\circ$
3. In an A.P., if $S_n = 3n^2 + 2n$, then the value of 'a_n' is **(1)**
   a. 7n – 2
   b. 9n – 4
   c. 8n – 3
   d. 6n – 1
4. The sum of (a + b), (a – b), (a – 3b), ... to 22nd term is **(1)**
   a. 22a + 440b
   b. 22a – 440b
   c. 20a + 440b
   d. 22a – 400b
5. The first and last terms of an A.P. are 1 and 11. If their sum is 36, then the number of terms will be **(1)**
   a. 7
   b. 5
   c. 8
   d. 6
6. Is series $\sqrt{3}, \sqrt{6}, \sqrt{9}, \sqrt{12}, \ldots\ldots$ an A.P.? Give reason. **(1)**
7. The sum of three numbers in AP is 21 and their product is 231. Find the numbers. **(1)**

8. Find a and b such that the numbers a, 9, b, 25 form an AP. **(1)**
9. For an A.P., if $a_{25} - a_{20} = 45$, then find the value of d. **(1)**
10. Find the common difference of the AP : $\frac{1}{p}, \frac{1-p}{p}, \frac{1-2p}{p}, \ldots$. **(1)**
11. An A.P. consists of 37 terms. The sum of the three middle most terms is 225 and the sum of the past three terms is 429. Find the A.P. **(2)**
12. Write the expression $a_n - a_k$ for the AP: a, a + d, a + 2d, ... and find the common difference of the AP for which 20^{th} term is 10 more than the 18^{th} term. **(2)**
13. The sum of the first three terms of an A.P. is 33. If the product of first and the third term exceeds the second term by 29, find the AP. **(2)**
14. If the m^{th} term of an AP be $\frac{1}{n}$ and its nth term be $\frac{1}{m}$, then show that its (mn)th term is 1. **(3)**
15. Find the sum of first 20 terms of an A.P., in which 3rd term is 7 and 7^{th} term is two more than thrice of its 3rd term. **(3)**
16. The ratio of the sums of first m and first n terms of an A.P. is $m^2 : n^2$. Show that the ratio of its m^{th} and n^{th} terms is (2m - 1):(2n -1). **(3)**
17. A spiral is made up of successive semi-circles with centres alternately at A and B starting with A, of radii 1 cm, 2 cm, 3 cm,.... as shown in the figure. What is the total length of spiral made up of eleven consecutive semi-circles? **(3)**



18. In an A.P., the sum of first n terms is $\frac{3n^2}{2} + \frac{13}{2}n$. Find its 25^{th} term. **(4)**
19. Find the sum of all integers between 100 and 550 which are not divisible by 9. **(4)**
20. If the sum of the first n terms of an A.P. is $4n - n^2$, what is the first term? What is the sum of first two terms? What is the second term? Similarly, find the third, the tenth and the nth terms. **(4)**