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Worksheet: Arithmetic Progression

1. In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in the school and each class has two sections, find how many trees were planted by the students. Which value is shown in this question?
2. A thief runs with a uniform speed of 100 m/minute. After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m/minute in the first minute and increases his speed by 10 m/minute every succeeding minute. After how many minutes the policeman will catch the thief.
3. A child puts one five–rupee coin of her saving in the piggy bank on the first day. She increases her saving by one five–rupee coin daily. If the piggy bank can hold 190 coins of five rupees in all, find the number of days she can continue to put the five–rupee coins into it and find the total money she saved. Write your views on the habit of saving.
4. Which term of the given AP : 3, 8, 13, 18, . . . ,is 78?
5. Yasmeen saves Rs.32 during the first month, Rs.36 in the second month and Rs.40 in the third month. If she continues to save in this manner, in how many months she will save Rs.2000, which she has intended to give for the college fee of her maid's daughter. What value is reflected here.
6. If p, q, r and s are in A.P. then r – q is
7. If 17th term of an A.P. exceeds its 10th term by 7. The common difference is:
8. Which term of the AP: 21, 42, 63, 84,… is 210 ?
9. 20th term from the last term of the A.P. 3, 8, 13, …, 253 is:
10. How many multiples of 4 lie between 10 and 250? Also find their sum.
11. The sum of all two digit odd numbers is
12. Find the value of m so that m + 2, 4m – 6 and 3m – 2 are three consecutive terms of an AP.
13. Ramkali required ■ 2500 after 12 weeks to send her daughter to school. She saved ■ 100 in the first week and increased her weekly saving by ■ 20 every week. Find whether she will be able to send her daughter to school after 12 weeks. What value is generated in the above situation?
14. If the 2nd term of an AP is 13 and the 5th term is 25, then its 7th term is

15. Find the middle term of the sequence formed by all three–digit numbers which leave a remainder 3, when divided by 4. Also find the sum of all numbers on both sides of the middle term separately.

16. If the ratio of the sum of the first n terms of two A.Ps is (7n + 1) ■ (4n + 27), then find the ratio of their 9th terms.

17. The ratio of the sums of the first m and first n terms of an arithmetic progression is $m^2 : n^2$. Show that the ratio of its mth and nth terms is (2m – 1) : (2n – 1).

18. For what value of k will k + 9, 2k – 1 and 2k + 7 are the consecutive terms of an A.P.?

19. Which term of the A.P. 3, 8, 13, 18, … is 78?

20. The first and the last terms of an A.P. are 8 and 350 respectively. If its common difference is 9, how many terms are there and what is their sum?