

B.B.S SMRITIVIDYAPEETH, AURAIYA

(An English Medium Co-Educational Sr. Sec.(10+2) affiliated to CBSE New Delhi)

WEEKLY ASSIGNMENT SERIES

Sub-Mathematics

Class- XII

- Ques.1- If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - px + q$, prove that
- $$\frac{\alpha^2}{\beta^2} + \frac{\beta^2}{\alpha^2} = \frac{p^4}{q^2} - \frac{4p^2}{q} + 2.$$
- Ques.2- If α and β are the zeros of the quadratic polynomial $f(x) = x^2 - 1$, find a quadratic polynomial whose zeros are $\frac{2\alpha}{\beta}$ and $\frac{2\beta}{\alpha}$.
- Ques.3- If α and β are the zeros of the quadratic polynomial $f(x) = ax^2 + bx + c$, then evaluate:
- | | | |
|---|--|---|
| (i) $\alpha - \beta$ | (ii) $\frac{1}{\alpha} - \frac{1}{\beta}$ | (iii) $\frac{1}{\alpha} + \frac{1}{\beta} - 2\alpha\beta$ |
| (iv) $\alpha^2\beta + \alpha\beta^2$ | (v) $\alpha^4 + \beta^4$ | (vi) $\frac{1}{a\alpha + b} + \frac{1}{a\beta + b}$ |
| (vii) $\frac{\beta}{a\alpha + b} + \frac{\alpha}{a\beta + b}$ | (viii) $a\left(\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}\right) + b\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right)$ | |
- Ques.4- The sum of digits of a two digit number is 15. The number obtained by reversing the order of digits of the given number exceeds the given number by 9. Find the given number.
- Ques.5- The sum of a two-digit number and the number formed by reversing the order of digits is 66. If the two digits differ by 2, find the number. How many such numbers are there?
- Ques.6- The sum of a two digit number and the number obtained by reversing the order of its digits is 99. If the digits differ by 3, find the number.
- Ques.7- A two-digit number is 3 more than 4 times the sum of its digits. If 18 is added to the number, the digits are reversed. Find the number.
- Ques.8- Two numbers are in the ratio 5 : 6. If 8 is subtracted from each of the numbers, the ratio becomes 4 : 5. Find the numbers.
- Ques.9- The sum of the numerator and denominator of a fraction is 4 more twice the numerator. If the numerator and denominator are increased by 3, they are in the ratio 2:3. Determine the fraction .
- Ques.10- The sum of the numerator and denominator are decreased by 1, the numerator becomes half the denominator. determine the fraction.
- Ques.11- The incomes of X and Y are in the ratio of 8:7 and their expenditures are in the ratio 19:16 if each saves Rs. 1250, find their incomes.

Ques.12- ABCD is a cyclic quadrilateral such that $\angle A = (4y + 20)^\circ$, $\angle B = (3y - 5)^\circ$, $\angle C = (4x)^\circ$ and find four angles.

Ques.13- The car hire charges in a city comprise of a fixed charge together with the charge for the distance covered. For a journey of 12km. the charge paid is Rs 89 and for a journey of 20km, the charge paid is Rs. 145. What will a person have to pay for travelling a distance of 30km?

Ques.14- A railway half ticket costs half the full fare reservation charge is the same of half ticket as on full ticket. one reserved first class ticket from Mumbai to Ahmedabad costs Rs. 216 and one full and one half reserved first class tickets cost Rs. 327. What is the basic first class full fare and what is the reservation charge?

Ques.15- In an A.P. the first term is 8, n th term is 33 and the sum to first n terms is 123. Find n and d , the common differences.

Ques.16- In an A.P., the first term is 22, n th term is -11 and the sum to first n terms is 66. Find n and d , the common difference.

Ques.17- The first and the last terms of an A.P. are 7 and 49 respectively. If sum of all its terms is 420, find its common difference.

Ques.18- The first and the last terms of an A.P. are 5 and 45 respectively. If the sum of all its terms is 400, find its common difference.

Ques.19- The sum of first n terms of an A.P. is 162. The ratio of its 6th term to its 13th term is 1 : 2. Find the first and 15th term of the A.P.

Ques.20- If the 10th term of an A.P. is 21 and the sum of its first ten terms is 120, find its n th term.

Ques.21- The sum of the first 7 terms of an A.P. is 63 and the sum of its next 7 terms is 161. Find the 28th term of this A.P.

Ques.22- The sum of first seven terms of an A.P. is 182. If its 4th and the 17th terms are in the ratio 1 : 5, find the A.P.

Ques.23- The n th term of an A.P. is given by $(-4n + 15)$. Find the sum of first 20 terms of this A.P.

Ques.24- In an A.P., the sum of first ten terms is -150 and the sum of its next ten terms is -550 . Find the A.P.

Ques.25- In an A.P., the first term is 2, the last term is 29 and the sum of the terms is 155. Find the common difference of the A.P.