AIR FORCE SCHOOL JAMMU
SESSION 2026-27
CLASS IX
SUBJECT - MATHEMATICS
ASSIGNMENT ON POLYNOMIALS, Coordinate geometry and Number System

Evaluate: $\frac{1}{\sqrt{2}+1}+\frac{1}{\sqrt{3}+\sqrt{2}}+\frac{1}{\sqrt{4}+\sqrt{3}}+.....+\frac{1}{\sqrt{9}+\sqrt{8}}$

If $x=\frac{1}{2+\sqrt{3}}$, find the value of $2x^3-7x^2-2x+1$.

If $x=\frac{1}{2-\sqrt{3}}$, find the value of x^3-2x^2-7x+5.

If $\sqrt{2}=1.414$ and $\sqrt{5}=2.236$, find the value of $\frac{\sqrt{10}-\sqrt{5}}{2\sqrt{2}}$ upto three places of decimals.

. Find the value of *a* so that the point (3, *a*) lies on the line represented by $2x - 3y = 5$.

. A line is drawn through a point *P*(3, 2) parallel to *x*-axis. What is the distance of the line from *x*-axis?

. What is the value of a if the points (3, 5) and (7, 1) are equidistant from the point (*a*, 0)?

. Prove that the points $(0, 9)$, $\left(\frac{b}{2}, \frac{a}{2}\right)$ and (*b*, 0) are collinear.

. *AB* is diameter of circle with centre at origin. What are the coordinates of *B* if coordinates of *A* are (3, –4)?

. *A* (3, 2) and *B* (–2, 1) are two vertices of ΔABC, whose centroid *G* has coordinates $\left(\frac{5}{3}, -\frac{1}{3}\right)$. Find the coordinates of the third vertex *C* of Δ*ABC*.

. For what value of *p*, are the points (–3, 9), (2, *p*) and (4, –5) collinear?

. Find the relation between *x* and *y* such that the point (*x*, *y*) is equidistant from the points (7, 1) and (3, 5).

. Find the coordinates of point *P* if *P* and *Q* trisect the line segment joining the points *A*(1, –2) and *B* (–3, 4).

Find *x* if the distance between the points (*x*, 2) and (3, 4) be $\sqrt{8}$ units

12. The perimeter of a rectangular swimming pool is 154 m. Its length is 2 m more than twice its breadth. What are the length and the breadth of the pool?

13. The base of an isosceles triangle is $\frac{4}{3}$ cm. The perimeter of the triangle is $4\frac{2}{15}$ cm. What is the length of either of the remaining equal sides?

14. Sum of two numbers is 95. If one exceeds the other by 15, find the numbers.

15. Two numbers are in the ratio 5:3. If they differ by 18, what are the numbers?

16. Three consecutive integers add up to 51. What are these integers?

17. The sum of three consecutive multiples of 8 is 888. Find the multiples.

18. Three consecutive integers are such that when they are taken in increasing order and multiplied by 2, 3 and 4 respectively, they add up to 74. Find these numbers.

19. The ages of Rahul and Haroon are in the ratio 5:7. Four years later the sum of their ages will be 56 years. What are their present ages?

20. The number of boys and girls in a class are in the ratio 7:5. The number of boys is 8 more than the number of girls. What is the total class strength?

21. Fifteen years from now Ravi's age will be four times his present age. What is Ravi's present age?

22. A rational number is such that when you multiply it by $\frac{5}{2}$ and add $\frac{2}{3}$ to the product, you get $-\frac{7}{12}$. What is the number?

23. Lakshmi is a cashier in a bank. She has currency notes of denominations Rs 100, Rs 50 and Rs 10, respectively. The ratio of the number of these notes is 2:3:5. The total cash with Lakshmi is Rs 4,00,000. How many notes of each denomination does she have?

24. I have a total of Rs 300 in coins of denomination Re 1, Rs 2 and Rs 5. The number of Rs 2 coins is 3 times the number of Rs 5 coins. The total number of coins is 160. How many coins of each denomination are with me?

25. The organisers of an essay competition decide that a winner in the competition gets a prize of Rs 100 and a participant who does not win gets a prize of Rs 25. The total prize money distributed is Rs 3,000. Find the number of winners, if the total number of participants is 63.

26. Deveshi has a total of Rs 590 as currency notes in the denominations of Rs 50, Rs 20 and Rs 10. The ratio of the number of Rs 50 notes and Rs 20 notes is 3:5. If she has a total of 25 notes, how many notes of each denomination she has?