SARALA BIRLA PUBLIC SCHOOL

Birla Knowledge City, Mahilong, Ranchi

Session - 2021-22

Assignment - II

Class: XII

Subject: Mathematics (Applied)

1) Find the value of $6^{12}(mod\ 7)$.
2) If Ω(n) = Total number of prime factors of n, n ∈ N, then find
   (i) Ω(36) (ii) Ω(156) (iii) Ω(221) (iv) Ω(420)
3) A container contains 50 litres of milk. From this container 10 litres of milk was taken out and replaced by water. This process is repeated two more times. How much milk is now left in the container.
4) In 2 hours a boat covers a certain distance in a river downstream at 17 km/h and returns back at 9 km/h. Find the speed of the stream.
5) A and B started a business and invest in the ratio 4:5 respectively. After 3 months A withdrew 1/4 of his investment and B withdrew 1/5 of his investment. If the profit at the end of a year was ₹ 78000, find A's share in the profit.
6) Two pipes A and B together can fill a tank in 10 minutes. If pipe A takes 15 minutes less than B to fill the tank alone, then find the time taken by pipe B to fill the tank alone.
7) In a game of 100 points, A can give 20 points to B and 28 points to C. Find how many points can B give C?
8) Find all pairs of consecutive even positive integers, both of which are larger than 5, such that their sum is less than 23.
9) Solve the inequality $|\ 7 - 3x\ | \leq 8$ and represent the solution on the number line.
10) Solve the following system of inequalities graphically:
    $2x + y \leq 24,\ x + y < 11,\ 2x + 5y \leq 40,\ x > 0,\ y \geq 0.$

□□□