

Revision XI

February 17, 2026

- The average weight of a group of 28 students increases by 5 kg when four of them leave this group. If the average weight of these four students is one-fifth the average weight of the original 28, then what is the average weight, in kg, of the remaining 24 students?

- Harsh has 20 pieces of paper. Some of them are quadrilaterals and the rest are triangles. He cut the quadrilaterals diagonally from corner to corner. He finds that the number of vertices of all the pieces now is 99. The number of quadrilaterals originally was

- Raghu is going on a long drive of 600 km. His car gives him a uniform mileage of 15 km per L of petrol. At the start of the journey the car has 10 L of fuel. The capacity of the fuel tank is 20 L. After driving for 45 km, Raghu reads a road sign showing the distances from that point to five petrol stations ahead on the road. These distances are P-20 km, Q-100 km, R-250 km, S-315 km. If he wants to keep the average fuel content in his tank to be as low as possible while making only two stops for refueling, which of the following statements is true?

- The gift boxes at a shop are numbered from 1 to N . When adding up the box numbers, one of them was mistakenly added twice, resulting in an incorrect sum of 266. What is the number of the box that was added twice?

- Three labourers - A, B, and C with equal efficiencies worked together for N days. During the course of work, all of them remained absent for a few days. A was absent for 12 days more than B, and C did one-third of the total work. How many days more than C was A absent?

- What is the shortest distance of the point $(3/2, 2)$ from the curve $y = |x-2| + |x+2|$?

- Eight consecutive three-digit positive integers have the following property: each of them is divisible by its last digit. What is the largest of the eight integers?

- A chemical is prepared by mixing 120 g of A, 200 g of B, and 80 g of C. The chemist uses 100 g of this mixture for a lab process and realises that to improve the reactivity, the proportion of chemical B needs to be increased. What quantity (in g) of chemical B should be added to the remaining mixture in order to make the concentration of chemical B in it as 60%?

- Let $14x + 35y + 28z = 98$ and $27x + 45y + 54z = 63$. What is the value of $15x + 30y + 30z$?

- In a class, 60% of the students passed the mathematics exam, and the rest failed. Among the students who passed, the highest score achieved was 98, and the lowest score was 40. Among the students who failed, the highest score achieved was 35, and the lowest score was 12. What is the possible range of average score for the entire class?

- The base of a vertical pillar with uniform horizontal cross-section is a trapezium whose parallel sides are of length 15 meters and 29 meters, while the other two sides are of equal length. The perpendicular distance between the parallel sides of the trapezium is 24 meters. If the total surface area of all six surfaces of the pillar is 4816 sq. m, what is the height (in m) of the pillar?

- A person going from home to work travels 4 km by taxi, 15 km by metro, and 2 km by auto. The journey takes 45 minutes, and the speed of the metro is three times that of the auto and 1.5 times that of the taxi. Find the speed (in km/h) of the metro.

- In August, Manohar purchased the same quantity of tomatoes and onions as he had purchased in July. However, he spent Rs.4,500 more in August due to a price increase of 40% and 20% for tomatoes and onions respectively. Manohar had spent Rs.9,000 on tomatoes in July. If he earned a profit of 15% by selling these two vegetables during July and August, then what was his total revenue (in Rs.) during the period?

- Mr. Shah wrote a will to split his wealth among his two sons and daughter, such that the ratio of the shares of the elder and younger sons is $5 : 4$, while the ratio of the shares of younger son and daughter is $8 : 7$. If the difference between the share of the wealth between his eldest son and daughter is Rs. 2.4 lakh, then what is the share (in Rs. lakh) of his younger son?

- In a 1000 m race Akash, Manu, and Rohit are the three participants. Akash, Manu, and Rohit can complete the race in the same time if Akash gives Manu a start of 50 m and Rohit a start of 69 m. The start (in m), which Manu can give Rohit is

- At a Bus Terminal 12 men and 17 women boarded an empty bus, but at the next stop half of men and 7 women got down and a total 5 people boarded the bus. As a result, the number of men became greater than the number of women in the bus. What is the number of women in the bus now?

- During the office party on New Year's Eve, a bank manager made the 1000 employees working under him perform an odd ritual. There were 1000 lockers in the bank. Employee 0001 went to every locker and opened it. Then, Employee 0002 went to every second locker and closed it. Employee 0003 went to every third locker. If the locker was closed, he opened it, and if it was open, he closed it. Employee 0004 repeated the process with every fourth locker, and so on. After Employee 1000 completed the ritual, how many lockers were left open?

- Here are 5 equations using 5 variables P, Q, R, S & T. Each letter represents one number:

$$P - Q = Q$$

$$Q \times R = P$$

$$S : Q = T$$

$$R \times R = T$$

$$R + T = P$$

Find $P \times Q \times R \times S \times T$.

- A mathematician, while going home, had to walk up a flight of stairs. The stairs consisted of twenty steps. One day, the mathematician, to get over monotony, decided to paint the stairs maroon and orange in accordance with the following rules he came up with:
 1. Every step was to be either painted maroon or orange.
 2. Orange steps would never succeed each other.In how many ways can the mathematician paint these stairs?

- Neha, a shopaholic, was caught overspending by her friends who decided to teach her a lesson on how to economise. They gave Neha Rs. 100 and asked her to buy no more or no less than 100 items for that amount. Also, the price of those 100 things should be exactly Rs. 100 - not a rupee less, not a rupee more. She was only allowed to buy ball-point pens, pencils and sketch pens. The sketch pens cost Rs. 6 each, the ball-point pens Rs. 3 each and the pencils cost 10 paise each. Their plan was to distribute the 100 things amongst the under-privileged. How many of each thing must she buy in order to satisfy the given conditions?

- Rachel and her spouse, Ross, held a party last night to celebrate their 1st Wedding Anniversary. They invited 4 other couples to the party. As the party progressed, Rachel discovered that, prior to the party, each person except her knew a different number of the people who were present at the party. Assuming that if Person A knew Person B, Person B also knew Person A, how many people did Ross know prior to the party? Also, how many people did Rachel know?

- The King of Einsteinia ordered the home cricket team to have their photograph clicked. As per his orders, all 11 of them lined up in a perfectly straight line to have their photograph taken. The captain stood at the center of the line-up. Using the following clues, identify the captain:
 - 1) Satish and Mohan stood to the captain's right.
 - 2) There were two players in between Nikhil and Sumeet.
 - 3) Seven players stood between Akram and John.
 - 4) Raj stood to Vaibhav's right.
 - 5) Nikhil stood between Ajay and Pankaj.
 - 6) Rohit and Pankaj stood to the captain's left.
 - 7) There were six players standing between Mohan and Nikhil.
 - 8) Two players stood between Nikhil and Rohit.

- To surprise children and to add some surprise elements, Santa is planning to distribute the empty boxes to the children. He has four types of boxes – Huge, Large, Medium and Small. Initially he had 13 huge boxes. He then keeps some Huge boxes empty and adds 8 large boxes in the each of the remaining huge boxes. Similarly, in some of these large boxes, he adds 8 medium boxes. And in some of these Medium boxes, he adds 8 small boxes. By doing this, he observes that there are a total of 189 empty boxes. Find the number of boxes used by Santa, in his surprise gifts. (Assume that box having an empty box cannot be considered as an empty box.)