

Revision VI

December 19, 2025

- A is a number 11111...1111 formed with 21 digits equal to 1.
What is the sum of the digits of the product $31 \times A$?

- Ravi drew a rectangle on the coordinate plane. One of the diagonals of the rectangle lies on the X-axis. The coordinates of two vertices on the X-axis are $(3, 0)$ and $(13, 0)$. Which of the following could be the co-ordinates of another vertex of this rectangle?
 1. $(-6, 2)$
 2. $(8, -3)$
 3. $(-5, 4)$
 4. $(4, -3)$

- Ram and Punit randomly chooses a number R and P from a set of first 20 natural numbers S randomly. If they choose numbers distinct from each other, then in how many ways can they choose the numbers such that the value of $P - R$ is at least 2?

- For how many natural numbers N is $\frac{N}{40 - N}$ also a natural number?

- Amisha has four times as much money as Mayur does. Every month, Amisha spends a constant amount of money, while Mayur earns one-fourth the amount of money that Amisha spends. After 10 months, the ratio of the amounts held by Amisha and Mayur is 12 : 5. How many months from the start will the ratio of the amounts held by Amisha and Mayur become 4 : 7?

- A set of four positive integers a , b , c and d in any arrangement - follow the condition that $a + 1 = b - 2 = 3c = d/4$. If the sum of the four numbers in the set is 58, then what is the average (up to one decimal place) of the largest and smallest number in the set?

- Drink A is made by mixing cola, lemon juice and sugar syrup in the ratio $2 : 6 : 7$, while Drink B is made by mixing them in the ratio $3 : 5 : 4$ respectively. Find the ratio of Drinks A and B to be mixed for making a new drink in which the ratio of cola and sugar syrup is $1 : 2$?

- Each vendor P, Q, R and S has a box of 800 apples. P sold 10% less number of apples than Q. Q sold 25% more number of apples than R, while R sold 20% less number of apples than S. If P sold 540 apples, find the percentage of apples sold by S.

- A class of students decided to do a work in 5 hours. But since 6 students left after the first hour, 2 more students left after the second hour, 2 more students left after the third hour and so on, the work was completed after 8 hours. How many students were there in the class?

- Ten kilometers of a highway stretch had already been constructed and an additional 10 km stretch was supposed to be built by a team of workers in 40 days. After 16 days of work, a herd of elephants destroyed half of the existing road. How much time will it take to complete the construction of the road now?

- The average of 8 numbers is 75. If the smallest number is deleted, then the average of the remaining numbers is A and if the largest number is deleted, then the average of the remaining numbers is B . If $A + B = 90$, then what is the average of the smallest and largest numbers?

- A group of kids initially planned to make 108 Christmas cards in D days. In the initial three days, the team successfully completed their daily target, and then afterward exceeded the plan by creating 4 extra cards each day. Consequently, a day before the planned date, they had already made 116 cards. How many cards a day did the team initially plan to make?

- Two cars A and B start simultaneously from two cities X and Y and meet somewhere in between. Car A can cover 25% of the distance between X and Y in 3 hours and Car B can cover $\frac{1}{6}$ th of the distance between X and Y in 2.5 hours. Find the speed of the Car B (in km/h) if Car A traveled 150 km to the meeting point.

- Anika and Rashi initiated a business together by investing Rs. 20,000 each. However, after 3 months, Anika decided to withdraw Rs. 5,000 from her investment, while Rashi contributed an additional Rs. 5,000. If they accumulated a profit of Rs. 12,800 by the end of the year, what is the difference in profit shares (in Rs.) between Rashi and Anika?

- A school van driver takes 8 children per trip and makes a profit of 10% when the price of petrol is Rs.100 per liter. Find his profit percentage if he takes 10 children in the van and the price of petrol reduces to Rs.88.

- Rahul invests Rs. X in a scheme and earns a monthly interest of Rs.3,500 at 20% per annum at simple interest. Rohit invests Rs. Y in another scheme at compound interest compounded semiannually and he earns the same annual interest as Rahul. If Rohit's scheme has the same rate of interest per annum as Rahul's, then the difference (in Rs.) between X and Y is

- Let $ABCDEF$ be a regular hexagon with side length of 4 cm. Let P be the midpoint of AB , and Q be the midpoint of DE . What is the perimeter (in cm) of the quadrilateral $PCQF$?

- A five character code is required to open a safe consisting of 2 letters and 3 digits out of $\{a, b, c, d, e\}$ letters and $\{1, 2, 3, 4, 5, 6, 7\}$ digits. How many different codes can be formed if there are two specific digits which cannot be together in the code?

- Amol and Bhola can complete a piece of work in 24 and 36 days, respectively. Amol worked for the first 10 days and then left, and then Bhola continued for the next 12 days and left. The remaining work is completed by Chintu. If Chintu received Rs.9,000 for the work done by him, then what was the amount (in Rs.) received by Amol?

- A train travels 60% faster than a car. Both start from point P at the same time and reach point Q, which is 80 km away, at the same time. However, on the way, the train lost about 15 minutes due to stops at the stations. What is the speed (in km/h) of the car?

- Sarah's age 6 years ago was equal to the sum of the present ages of her son and her daughter. Five years hence, the ratio between her daughter's age and her son's age will be 7 : 6 respectively. Sarah's husband, Shan, is 9 years older than her. Shan's present age is thrice the present age of his son. What is his daughter's present age (in years)?