

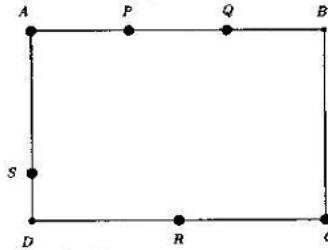


1. If $\frac{1}{5\frac{1}{3}} + \frac{1}{3\frac{3}{7}} + \frac{1}{4\frac{4}{7}} + \frac{1}{?} = \frac{77}{96}$

Find what should be filled in the place marked?

2. There are 10 cards numbered 1 to 10. There are three second standard children Ram, Bilal and Cynthia. The teacher selects 3 cards from the 10 cards without seeing the numbers. She distributes the cards to the children one to each. After the children noting down the numbers in the cards she collects them back. Again she repeats the same process two more times. So, each child now has 3 numbers noted down. The teacher asks them to add the numbers and tell her the sums obtained by them. They told her that the sums were 10, 14, 15. But Ram received the same cards three times. Bilal and Cynthia received all cards different. What numbered cards are received by each? Write down the steps you used to get the answer.

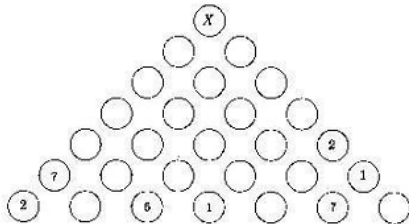
3. In the adjoining figure $ABCD$ is a rectangle. Points P, Q, R, S are marked as in the diagram such that $AP = PQ = QB$. R is the midpoint of CD . If $AS : SD = 3 : 1$, find the ratio of the areas of triangle ASP , quadrilateral $SPRD$, triangle PQR and the trapezium $QBCR$.



4. Take the numbers 1, 2, 3, 4, 5, 6, 7 and 8. We have to make two groups, A, B each containing four numbers such that
- The sum of the numbers in group A is equal to the sum of the numbers in group B
 - Group A has a number such that when it is moved from group A to group B, the sum of the five numbers in group B is equal to twice the sum of the 3 numbers in group A.
 - Group B has a number such that when it moved to group A, the sum of the three numbers in Group B is $\frac{5}{7}$ of the sum of the 5 numbers in Group A.

Find the number in the groups A and B.

5. In the adjoining figure the number in each circle is the sum of the numbers in the two adjacent circles below it.



- Find X , writing the steps systematically.
- What is the least positive number to be added to X so that the result is a perfect square?
- What is the least positive number to be subtracted from X so that the result is a perfect square?