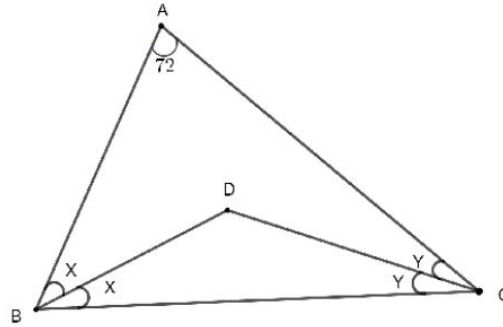


All questions carry equal marks.

Total Marks 100

1. How many three digit natural numbers are divisible by 17 ?
2. 5 chairs and 3 tables cost Rs. 416 and 7 chairs and 5 tables cost Rs. 636. Then positive difference between cost of one chair and one table is?
3. 6 coins of equal weight are melted and recasted into a single coin. The ratio of Gold and Silver in one coin was 2:1, 5:3 in two coins and 7:5 in remaining three coins. The ratio of Gold and Silver in the new recasted coin is $m : n$ where m, n are natural numbers having no common factor. Find $m + n$.
4. If $a = \sqrt{6} + \sqrt{5}$ and $b = \sqrt{6} - \sqrt{5}$, Find value of $2a^2 - 5ab + 2b^2$.
5. Find the value of $\left[\sqrt{(8 + \sqrt{28})} - \sqrt{(8 - \sqrt{28})} \right]^2$
6. A has taken a loan of Rs. X from B . On first day A returns Rs. 1 to B, on second day A returns Rs. 2 to B, on third day A returns Rs. 3 to B and so on. After 30 days he returned 93% of the loan amount to B . How much is the remaining loan amount in rupees?
7. If $9^{20} + 9^{20} + 9^{20} = 3^x$, Find x .
8. A tank is full of water and has 3 taps. One tap empties the tank in 8 hours. Second tap empties the tank in 10 hours. Third tap empties the tank in 40 hours. If all 3 taps opened simultaneously, after how many hours the tank will be empty?
9. A had Rs. 600 in his pocket. Total number of Rs. 10 notes are double of Rs. 50 notes and number of Rs. 5 notes are more by 8 than the number of Rs. 10 notes. Find total number of notes.
10. If P is the smallest positive integer that leaves remainder 1 when divided by all single digit positive integers, then find the positive square root of $(P - 21)$.
11. A regular hexagon has all 6 sides congruent and all 6 angles congruent. If $ABCDEF$ is a regular hexagon having each side length 6 , Find $\frac{AE^2}{2}$.
12. Two articles were sold at Rs. 1485 each. One article incurred 10% loss while other incurred 10% profit. What is the total loss or profit in Rupees?
13. a, b, c and d are positive integers. $\frac{a}{b} = 2, \frac{b}{c} = 4, \frac{c}{d} = 8$ Then $\frac{4a + 2b + c + 2d}{a + 2b + 4c + 5d} = ?$
14. On any day, from 12:05 AM to 11 : 55 PM, how many times the minute hand and hour hand of a clock coincide exactly over each other?

15. In the Wimbledon tennis tournament, total 128 tennis players participate. Each losing player goes out of the tournament and winning player advances to the next round. If total matches are played in the entire tournament is T , then find $T - 47$.
16. $834p$ is a four digit number with digit p at unit place. $q7$ is two digit number with q at tenth place . If $834p \times q7 = 55p383$, find $p + q$.
17. In $\triangle ABC$, measure of angle A is 72 degree. Ray BD and ray CD are internal angle bisectors of $\angle B$ and $\angle C$ respectively. Find the value of (measure of $\angle BDC - 90^\circ$).



18. If the permissible values of x satisfying the equation $(6 + x)^{x^2 - 7x + 12} = 1$ are p, q, r , find $p + q + r$.
19. Simplify $\frac{\sqrt{1.96} + \sqrt{2.25} + \sqrt{2.89}}{(0.7)^2 - 0.03}$
20. $\triangle ABC$ and $\triangle ADE$ are equilateral triangles as shown with D is on $\overline{BC}$, $\angle EAC = 3x, \angle ADB = 7x$. Find x .

