CLASS X
HOLIDAYS HOMEWORK
Subject-Maths

1. Consider the numbers 4n, where n is a natural number. Check whether there is any value of n for which 4n ends with the digit zero.

2. Find the LCM and HCF of 6 and 20 by the prime factorization method.

3. Find the HCF of 96 and 404 by the prime factorization method. Hence, find their LCM.

4. Express each number as a product of its prime factors:(i) 140 (ii) 156 (iii) 3825 (iv) 5005 (v) 7429

5. Find the LCM and HCF of the following pairs of integers and verify that LCM × HCF = product of the two numbers.

 (i) 26 and 91 (ii) 510 and 92

6. Find the LCM and HCF of the following integers by applying the prime factorization method. 12, 15 and 21 (ii) 17, 23 and 29

7. Given that HCF (306, 657) = 9, find LCM (306, 657).

8. There is a circular path around a sports field. Sonia takes 18 minutes to drive one round of the field, while Ravi takes 12 minutes for the same. Suppose they both start at the same point and at the same time, and go in the same direction. After how many minutes will they meet again at the starting point?

9. Use Euclid's division lemma to show that the square of any positive integer is of the form 5q, 5q+1,5q+4 for some integer q.

 10. Give linear equations which is coincident with 2 x + 3y - 4 = 0

11. Find the value of K so that the pair of linear equations : (3 K + 1) x + 3y − 2 = 0 (K2 + 1) x + (k−2)y − 5 = 0 is inconsistent. 8. Solve for x and y : 2x + 3y = 17 2x + 2 − 3 y+1 = 5.

12. The area of a rectangle remain the same if its length is increased by 7 cm and the breadth is decreased by 3 cm. The area remains unaffected if length is

decreased by 7 cm and the breadth is increased by 5 cm. Find length and breadth.

13. A no. consists of three digits whose sum is 17. The middle one exceeds the sum of other two by 1. If the digits are reversed, the no. is diminished by 396. Find the no.

14. For which values of *p* and *q*, will the following pair of linear equations have infinitely many solutions?
$4x + 5y = 2$; $(2p + 7q) x + (p + 8q) y = 2q − p + 1$.

15. For which value(s) of *k* will the pair of equations $kx + 3y = k − 3$; $12x + ky = k$ have no solution?

16. For which values of *a* and *b,* will the following pair of linear equations have infinitely many solutions? $x + 2y = 1$ $(a − b)x + (a + b)y = a + b − 2$

17. If $2x + y = 23$ and $4x − y = 19$, find the values of $5y − 2x$ and $y/x− 2$.

18. If $x+1$ is a factor of $2x3 + ax2 + 2bx + 1$, then find the values of *a* and *b* given that $2a−3b = 4$.

19. The angles of a triangle are *x, y* and 40°. The difference between the two angles *x* and *y* is 30°. Find *x* and *y.*

20. Two years ago, Salim was thrice as old as his daughter and six years later, he will be four years older than twice her age. How old are they now?

21. The age of the father is twice the sum of the ages of his two children. After 20 years, his age will be
equal to the sum of the ages of his children. Find the age of the father.

22. Two numbers are in the ratio 5 : 6. If 8 is subtracted from each of the numbers, the ratio becomes 4 : 5.Find the numbers.

23. The angles of a cyclic quadrilateral ABCD are A = (6*x* + 10)°, B = (5*x*)° C = (*x* + *y*)°, D = (3*y* −10)° Find *x* and *y,* and hence the values of the four angles.

24. Jamila sold a table and a chair for Rs 1050, thereby making a profit of 10% on the table and 25% on the chair. If she had taken a profit of 25% on the table and 10% on the chair she would have got Rs 1065. Find the cost price of each.

 25. A person, rowing at the rate of 5 km/h in still water, takes thrice as much time in going 40 km upstream as in going 40 km downstream. Find the speed of the stream.

PROJECT

Make a project on IPL matches.

Step 1: Collect the data of IPL matches. (Scores of different teams in different matches)

Step 2: Represent your Data by making bar graph, pie chart and frequency polygon .

Step 3: Calculate the mean score of two teams who were in semifinals. (Mean of Scores of all the matches they played during this IPL.

Step 4: Calculate the median of score of your favorite player during this IPL. (Mode of scores made by that player in all the matches he played)

Step5: Calculate the mode of number of wickets taken in different matches by the winner of purple cap this year.