1. Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q + 5, where q is some integer.
2. An army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march? Sol. Hints: Find the HCF of 616 and 32
3. Use Euclid's division lemma to show that the square of any positive integer is either of the form 3m or 3m + 1 for some integer m. [Hint : Let x be any positive integer then it is of the form 3q, 3q + 1 or 3q + 2. Now square each of these and show that they can be rewritten in the form 3m or 3m + 1.]
4. Use Euclid's division lemma to show that the cube of any positive integer is of the form 9m, 9m + 1 or 9m + 8.
5. 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.

6. Find the LCM and HCF of 6 and 20 by the prime factorization method.
7. Find the HCF of 96 and 404 by the prime factorization method. Hence, find their LCM.
8. Find the HCF and LCM of 6, 72 and 120, using the prime factorization method.
9. Find the value of y if the HCF of 210 and 55 is expressible in the form 210 x 5 + 55y
10. Prove that no number of the type 4K + 2 can be a perfect square.
11. Express each number as a product of its prime factors:(i) 140 (ii) 156 (iii) 3825 (iv) 5005 (v) 7429
12. 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 (iii) 336 and 54
13. Find the LCM and HCF of the following integers by applying the prime factorization method. 12, 15 and 21 (ii) 17, 23 and 29 (iii) 8, 9 and 25
14. Given that HCF (306, 657) = 9, find LCM (306, 657).
15. Check whether 6n can end with the digit 0 for any natural number n.
16. Explain why 7 × 11 × 13 + 13 and 7 × 6 × 5 × 4 × 3 × 2 × 1 + 5 are composite numbers.

17. 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?

18. 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.

19. Show that any one of the numbers (n + 2), n and (n + 4) is divisible by 3.

20. If 793800 = 2 3 x 3 m x 5 n x 7 2, find the value of m and n.

21. If the HCF of 210 and 55 is expressible in the form 210 × 5 + 55y then find y.

22. Given that HCF (135, 225) = 45. Find LCM (135, 225).

d Cardinal Point
One Stop Edu Solution

23. Solve √18x √50. What type of number is it, rational or irrational?

24. What type of decimal expansion will 69/60 represent? After how many places will the decimal expansion terminate?

25. Find the H.C.F. of the smallest composite number and the smallest prime number.

26. If a = 4q + r then what are the conditions for a and q. What are the values that r can take?

27. What is the smallest number by which √5 - √ 3 be multiplied to make it a rational no? Also find the no. so obtained.

28. What is the digit at unit's place of 96?

29. Find one rational and one irrational no. between √3 and √5.

30. If the no. p never to end with the digit 0 then what are the possible value (s) of p?

31. State Euclid's Division Lemma and hence find HCF of 16 and 28.

32. State fundamental theorem of Arithmetic and hence find the unique fraternization of 120.

33. Prove that 1/(2 - √5) is irrational number.

34. Check whether 5 × 7 × 11 + 6 is a composite number.

35. Check whether 7 × 6 × 3 × 5 + 5 is a composite number.