1) Use Euclid's division algorithm to find the HCF of 867 and 255.
2) Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q +5, where q is some integer
3) Find the LCM and HCF of the following integers by applying the primefactorisation method. (i) 12, 15 and 21.
4) Prove that the following is irrational:
   (a) $6 + \sqrt{2}$
   (b) $\sqrt{5}$
5) 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 time, from the same point and in thesame direction. After how many minutes they will meet again at the starting point.
6) Explain why 7 X 11 X 13 + 13 and 7 X 6X 5 X 4 X 3 X 2 X 1 + 5 arecomposite numbers
7) Check whether 6^n can end with the digit 0 for any natural number n
8) Given HCF of (306, 657) is 9. Find LCM of (306, 657)
9) The following real numbers have decimal expansions as given below. In each case, decide whether they are rational or not. If they are rational, andof the form p / q, what can you say about the prime factor of q?

   (a) 43.123456789
   (b) 0.120120012000120000…
10) State the fundamental theorem of Arithmetic.
11) Express 2658 as a product of its prime factors.
12) Show that the square of an odd positive integers is of the form 8m + 1 for some whole number m.
13) Find the LCM and HCF of 17, 23 and 29.
14) Prove that $\sqrt{2}$ is not a rational number.
15) Find the largest positive integer that will divide 122, 150 and 115 leaving remainder 5, 7 and 11respectively.
16) Show that there is no positive integer n for which $\sqrt{n-1} + \sqrt{n+1}$ is rational.
17) Using prime factorization method, find the HCF and LCM of 72, 126 and 168. Also show that HCF X LCM ≠ product of the three numbers.
18) Show that one and only one out of n, n+2,n+4 is divisible by 3.
19) There is a circular path around the sports field. Geeta takes 20 minutes to drive one round of the field. While Ravi takes 14 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?

Ans-42 minutes

20) Using Euclid's algorithm find the HCF of the following 4052 and 12576

Ans-4

21) Show that the square of any odd integer is of the form 4q+1 for some integer q.
22) Show that any positive odd integer will be of the form 4q+1 or 4q+3 where q is some integer.
23) If a = 4q + r then what are the conditions for a and q. What are the values that r can take?
24) What is the smallest number by which $\sqrt{5} - \sqrt{3}$ be multiplied to make it a rational no? Also find the no. so obtained.
25) What is the digit at unit's place of 9n?
26) State fundamental theorem of Arithmetic and hence find the unique factorization of 120.
27) Check whether 14n can end with the digit zero for any natural number, n.
28) If p/q is a rational number ($q \neq 0$). What is the condition on q so that the decimal representation of p/q is terminating?

Ans. q is form of $2^n.5^m$ where n and m are non-negative integers.

29) Write a rational number between $\sqrt{2}$ and $\sqrt{3}$.

Ans. 1.5

30) State whether the number $(\sqrt{2} - \sqrt{3})(\sqrt{2} + \sqrt{3})$ is rational or irrational and justify.

Ans. Rational

31) 4. Write one rational and one irrational number lying between 0.25 and 0.32.

Ans. One rational no. =0.26, one irrational no. = 0.27010010001...

32) Express 107 in the form of 4q + 3 for some positive integer.

Ans. 4 X 26 + 3

33) Write whether the rational number 51/1500 will have a terminating decimal expansion or a non-terminating repeating decimal expansion.

Ans. Terminating.