

Mathematics Assignment (Class-X)

Chapter-1 Real Number

	1 MARKER QUESTIONS
1	Express the positive integers 13915 as the product of its primes.
2	Given that $HCF(60, 168) = 12$, find $LCM(60, 168)$.
3	A rational number can be expressed as terminating decimal if the denominator is of the form_____.
4	Every positive even integer is of the form_____ and every positive odd integer is of the form_____.
5	For the given positive integers, a and b, $a > b$, state Euclid's Division Lemma.
6	State the Fundamental theorem of Arithmetic.
7	The HCF of a number which is neither prime nor composite and any other number x is a) x b) $x + 1$ c) 1 d) any number
8	The exponent of 2 in the prime factorization of 144 is a) 7 b) 2 c) 1 d) 4
	2 MARKER QUESTIONS
9	Without actually performing the long division, state whether the following rational numbers will have a terminating decimal expansion or a non-terminating repeating decimal expansion? If they have a terminating decimal expansion, then express them in the decimal form: (i) $\frac{43}{2^2 5^3}$ (ii) $\frac{441}{2^2 5^7 7^2}$ (iii) $\frac{14587}{1250}$ (iv) $\frac{35}{250}$
10	Use Euclid's Division Algorithm to find HCF of: (i) 56 and 88 (ii) 609 and 957 (iii) 9367 and 3451
11	Find LCM and HCF of the numbers 6, 72 and 120. Also show that $HCF \times LCM \neq$ product of numbers.
12	The following real numbers have decimal expansions as given below. In each case decide whether they are rational or not. If they are rational and of the form p/q , what can you say about the prime factors of q? (i) 21.145897 (ii) $43.\overline{245631}$ (iii) 1.10100100010000.....
13	Show that 15^n can never end with the digit zero for any natural number n.
14	Show that any positive integer is of the form: $3q$, $3q + 1$ or $3q + 2$ for some integer q.
15	Prove that the following numbers are irrational: (i) $7 - 2\sqrt{5}$ (ii) $\frac{3}{2\sqrt{5}}$ (iii) $3\sqrt{7} + 4$

	(iv) $\frac{2}{\sqrt{7}}$ (v) $2\sqrt{3} - 1$
16	Explain why $5 \times 7 \times 11 \times 13 \times 17 + 17$ is composite number?
	3 MARKER QUESTIONS
17	Show that the square of any positive integer is of the form $8q + 1$ where q is some integer.
18	Show that the cube of any positive integer of the form $6q + r$, q is an integer and $r = 0, 1, 2, 3, 4, 5$ is of the form $6m + r$.
19	Three light houses flash their lights every 15 seconds, 12 seconds and 18 seconds respectively. If they last flashed together at 9:15 a.m., then at what time will they next flash together?
20	Kiran goes to Big Bazaar every 64 days and Harpreet goes to the same every 72 days. They met each other one day. How many days later will they meet each other again?
21	Prove that the following numbers are irrational: (i) $\sqrt{11}$ (ii) $\sqrt{7}$ (iii) $\sqrt{5}$
22	Obtain HCF and LCM of the following pairs of positive integers by applying the prime factorization method. Also verify that the product of LCM and HCF = the product of the numbers. (i) 180 and 192 (ii) 306 and 657
23	Prove that $\sqrt{5} + \sqrt{3}$ is irrational.
	HOTS
24	If p and q are two prime numbers, then what is their LCM? Also write their HCF.
25	Prove that $\sqrt{p}$ is an irrational number for any prime p .
26	What is the greatest number which divides 442, 569, 697 leaving remainder 1, 2 and 4 respectively?
27	Find the HCF of 90 and 144 and express it as a linear combination of 90 and 144.
28	Prove that $n^2 - n$ is divisible by 2 for every positive integer n .
29	Prove that one of every three consecutive positive integers is divisible by 3.
30	Can two positive numbers have 812 and 28 as their HCF and LCM respectively? Justify.