MONTESSORI ELITE SENIOR SECONDARY SCHOOL
(Affiliated to CBSE, New Delhi – Affiliation No – 130604)
ELITE IIT ACADEMY
IIT (Online) Refresher Course

Subject : Mathematics **Date : 01 – 05 - 23**

Work sheet - 1

1. The remainder of any perfect square divided by 3 is _____. ( )
   a) 0 b) 1 c) either a or b d) neither a nor b
2. If n is any natural number, then $6^n - 5^n$ always ends with _____ ( )
   a) 1 b) 3 c) 5 d) 7
3. Find the remainder when the square of any number is divided by 4. ( )
   a) 0 b) 1 c) either a or b d) neither a nor b
4. For what values of x, $2^x \times 5^x$ ends in 5? ( )
   a) 0 b) 1 c) 2 d) no value of x
5. Which of the following is a terminating decimal? ( )
   a) $\frac{4}{7}$ b) $\frac{3}{7}$ c) $\frac{2}{3}$ d) $\frac{1}{2}$
6. LCM of two co-primes (say x and y) is _____. ( )
   a) x + y b) x – y c) xy d) $\frac{x}{y}$
7. HCF of two co-primes (say x and y) is_____. ( )
   a) x b) y c) xy d) 1
8. The LCM and HCF of two numbers are equal, then the numbers must be ____.
   a) Prime b) co-prime c) composite d) equal
9. The sum of LCM and HCF of two numbers is 1260. If their LCM is 900 more than their HCF , find the product of two numbers. ( )
   a) 203400 b) 194400 c) 198400 d) 205400
10. The value of $(37)^{3^x} - (33)^{3^x}$ ends in _____ ($x \in N$), ( )
    a) 4 b) 6 c) 0 d) either a or b

Objective :

1. State whether the following numbers are rational (or) not :
   i) $(2 + \sqrt{2})^2$ ii) $(5 + \sqrt{5})(5 - \sqrt{5})$
2. Find the square of the following :
   i) $2\sqrt{3}$ ii) $\frac{3\sqrt{5}}{2}$
3. Write a pair of irrational numbers whose sum is irrational.
4. Write a pair of irrational numbers whose sum is rational.
5. Insert two irrational numbers between 5 and 6.
6. Find one rational number between 3 and 5.