

# KENDRIYA VIDYALAYA IIT MADRAS

## Summer Holiday Home work X APRIL 2018-19

**Note: All the holiday home-work should be submitted on A4 sheets only**

### A

- 1.State the fundamental theorem of arithmetic.
2. Write the condition for a rational number which can have a terminating decimal expansion.
3. Given the  $HCF(150,100) = 50$ . Find LCM.
4. Express 150 as a product of its primes.
5. Write a rational number between  $\sqrt{2}$  and  $\sqrt{3}$
6. Prove that,  $\sqrt{11}$  is irrational.
7. Show that,  $\sqrt{3} + 2\sqrt{5}$  is irrational.
8. Find LCM of 36, 40, 48.
9. Write the prime factors of 2700.
10. Write the condition satisfied by 455, so that  $\frac{64}{455}$  has a non-terminating repeating decimal expansion.
11. Find a quadratic polynomial  $P(y)$  whose sum and product of zeroes are 3 and  $-\frac{1}{3}$  respectively.
12. If  $\alpha$  and  $\beta$  are the zeroes of the quadratic polynomial  $x^2 + 2x + 1$ , then find the quadratic polynomial whose zeroes are  $\alpha^2\beta$  and  $\alpha\beta^2$ .
13. Find a quadratic polynomial whose one of the zeroes is -15 and sum of the zeroes is 42.
14. Find the zeroes of the quadratic polynomial  $16x^2 - 3$ .
15. Find the quadratic polynomial whose zeros are reciprocals of the polynomial  $p(x) = x^2 - x - 2$ .
16. Find the zeros of the quadratic polynomial  $8x^2 - 21 - 22x$  and verify the relationship between zeros and coefficients of the polynomial.
17. Obtain all zeros of the polynomial  $f(x) = 2x^4 + x^3 - 14x^2 - 19x - 6$ , if two of its zeros are -2 and -
18. Give an example of polynomials  $p(x)$ ,  $g(x)$ ,  $q(x)$  and  $r(x)$ , which satisfy the division algorithm and  $\text{degree } q(x) = \text{degree } r(x)$ .
19. Find HCF of the polynomials  $x^3 - 4x^2 + x + 6$  and  $(6x^2 + x - 1)(x - 3)^3$

20. If  $\alpha, \beta$  are zeroes of the polynomial  $x^2-2x-8$ , then form a quadratic polynomial whose zeroes are  $2\alpha$  and  $2\beta$

**B**

Write algebraic identities and laws of exponents.

**C**

Write multiplication tables 6 to 20, and conversion tables at least twice.

**D**

Write history and contributions of your favourite Mathematician.