



# INDIAN SCHOOL AL WADI AL KABIR

Holiday Assignment (2019 - 2020)

Class: IX

Sub: MATHEMATICS

Submission Date

Date : 23-05-2019

8<sup>th</sup> Aug 2019

**Instructions:** (i) All questions are compulsory

(ii) Please write down the serial number of the question before attempting it.

- The sum of  $0.\bar{5}$  and  $0.\bar{2}$  is :  
(A)  $\frac{7}{99}$  (B)  $\frac{7}{9}$  (C)  $\frac{7}{10}$  (D)  $\frac{7}{100}$
- The factors of polynomial  $4x^2 + y^2 + 4xy + 8x + 4y + 4$  are :  
(A)  $(2x + y + 1)^2$  (B)  $(2x + y + 2)^2$  (C)  $(x + 2y + 2)^2$  (D)  $(2x + 2y + 1)^2$
- If  $x + y + 2 = 0$  then  $x^3 + y^3 + 8$  equals :  
(A)  $(x + y + 2)^3$  (B) zero (C)  $6xy$  (D)  $-6xy$
- The number of real zeroes of the polynomial  $4 + x^3 + x - 3x^2$  is :  
(A) zero (B) 1 (C) 2 (D) 3
- A polynomial containing two non - zero terms is called a :  
(A) zero polynomial (B) quadratic polynomial  
(C) binomial (D) trinomial
- The value of k if  $x + 2$  is a factor of  $3x^2 + kx - 10$  is :  
(A) -1 (B) 1 (C) 0 (D) 2
- The co-efficient of  $x^2$  in  $(2x^2 - 5)(4 + 3x^2)$  is :  
(A) 2 (B) 3 (C) 8 (D) -7
- The number  $(\sqrt{2} + \sqrt{5})^2$  is :  
(A) not a real number (B) rational number  
(C) an integer (D) irrational number
- One of the factors of  $(9x^2 - 1) - (1 + 3x)^2$  is :  
(A)  $(3 + x)$  (B)  $(3 - x)$  (C)  $(3x - 1)$  (D)  $(3x + 1)$
- The value of p if  $x = 2$  is a zero of the polynomial  $2x^2 + 3x - p$  is :  
(A) -4 (B) 8 (C) 14 (D) 0
- If  $x = 3 - 2\sqrt{2}$ , find the value of  $\sqrt{x} + \frac{1}{\sqrt{x}}$  An:  $\pm 2\sqrt{2}$

12. Factorise :  $(x+2)^2 + p^2 + 2p(x+2)$  An :  $(x+2+p)(x+2+p)$
13. For what value of m is  $x^3 - 2mx^2 + 16$  divisible by  $x+2$  An :  $m=1$
14. If  $\sqrt{2} = 1.414$ ,  $\sqrt{3} = 1.732$  then find  $\frac{4}{3\sqrt{3} - 2\sqrt{2}} + \frac{3}{3\sqrt{3} + 2\sqrt{2}}$  An : 2.063
15. If  $p = 5 + 2\sqrt{6}$  and  $x = \frac{1}{p}$ , then what will be the value of  $p^2 + x^2$ . An : 98
16. If  $a + b + c = 6$ , find the value of  $(2-a)^3 + (2-b)^3 + (2-c)^3 - 3(2-a)(2-b)(2-c)$  An : 0
17. The volume of a cuboid is polynomial  $p(x) = 8x^3 + 12x^2 - 2x - 3$ . Find possible expression for dimension of the cuboid. Verify the result by taking  $x = 5$  units.  
An : 9, 11, 13 units
18. Divide  $x^3 + 4x^2 - 3x - 10$  by  $x + 1$  and verify your remainder by Remainder Theorem An : -4
19. Factorise,  $x^3 - 6x^2 + 11x - 6$  using factor theorem. An :  $(x-1)(x-2)(x-3)$
- 20 Simplify :  $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$  An :  $\sqrt{5}$
- 21 Find the remainder when  $x^3 + x^2 + x + 1$  is divided by  $x - \frac{1}{2}$ , using Remainder Theorem.  
An :  $\frac{15}{8}$
- 22 Factorise the polynomial  $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$  An :  $(\sqrt{3}x + 2)(4x - \sqrt{3})$
- 23 Evaluate :  $(\sqrt{5} + \sqrt{2})^2 + (\sqrt{8} - \sqrt{5})^2$  An :  $20 - 2\sqrt{10}$
- 24 If  $x = 2 + \sqrt{3}$ , find  $x - \frac{1}{x}$  and  $x^2 + \frac{1}{x^2}$  An : 14
- 25 Simplify :  $\frac{4 + \sqrt{5}}{4 - \sqrt{5}} + \frac{4 - \sqrt{5}}{4 + \sqrt{5}}$  An :  $\frac{42}{11}$
- 26 Factorise the following :  
 $(a^2 - 2a)^2 - 23(a^2 - 2a) + 120$  An :  $(a-5)(a+3)(a-4)(a+2)$
- 28 Find the value of  $\frac{1}{3 + \sqrt{8}} + \frac{1}{\sqrt{8} + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{5}} + \frac{1}{\sqrt{5} + 2}$  An : 1