

# DOON PUBLIC SCHOOL, BHUJ

## HOME ASSIGNMENT

### CLASS IX

### MATHEMATICS

Dear Students

This is your home assignment which you have to complete in your maths notebook. Write explanation of each Multiple Choice Questions and Short Answer Questions. This assignment will be checked on reopening of the school. Manage your time effectively as time is free but it is priceless. I wish you to have great time with your family during vacation. Take care and stay safe!

## Chapter-1 NUMBER SYSTEM

### Multiple Choice Questions (1 Marks)

- Which of the following statements is true?
  - The sum of two irrational numbers is always irrational
  - The sum of two irrational numbers is always rational
  - The sum of two irrational numbers may be rational or irrational number
  - The sum of two irrational numbers is always an integer[Ans C]
- The value of  $0.\overline{23} + 0.\overline{22} =$ 
  - $0.\overline{45}$
  - $0.\overline{43}$
  - 0.43
  - 0.45[Ans A]
- Every point on a number line represents
  - A unique real number
  - A natural number
  - A rational number
  - An irrational number[Ans A]
- The value of  $\sqrt[3]{125 \times 27}$  is
  - 10
  - 15
  - 25
  - 20[Ans B]
- The product of square root of x with the cube root of x is
  - Cube root of the square root of x
  - Sixth root of fifth power of x
  - Fifth root of the sixth power of x
  - Sixth root of x[Ans B]
- When simplified  $\left(\frac{-1}{27}\right)^{-\frac{2}{3}}$  is
  - 9
  - 9
  - $\frac{1}{9}$

d.  $\frac{-1}{9}$  [Ans A]

7. The rationalization factor of  $2 + \sqrt{3}$  is

a.  $\sqrt{2} + 3$

b.  $\sqrt{2} - 3$

c.  $\sqrt{3} - 2$

d.  $2 - \sqrt{3}$  [Ans D]

8.  $\sqrt{10} \times \sqrt{15}$  is equal to

a.  $5\sqrt{6}$

b.  $6\sqrt{5}$

c.  $\sqrt{30}$

d.  $\sqrt{25}$  [Ans A]

9.  $\frac{1}{\sqrt{9}-\sqrt{8}}$  is equal to

a.  $3 + 2\sqrt{2}$

b.  $\frac{1}{3+2\sqrt{2}}$

c.  $3 - 2\sqrt{2}$

d.  $\frac{3}{2} - \sqrt{2}$  [Ans A]

10. When simplified  $(x^{-1} + y^{-1})^{-1}$

a.  $xy$

b.  $x + y$

c.  $\frac{xy}{x+y}$

d.  $\frac{x+y}{xy}$  [Ans C]

### Short Answer Questions (2 marks)

11. Write an irrational number between 2 and 2.5 [Ans. 2.3010010001....]

12. Represent  $1.\overline{27}$  in the form of  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ . [Ans.  $\frac{14}{11}$ ]

13. Write the smallest rational number by which  $\frac{1}{3}$  should be multiplied so that its decimal expansion terminates after one place of decimal [Ans.  $\frac{3}{10}$ ]

14. Write the reciprocal of  $5 + \sqrt{2}$  [Ans.  $\frac{5-\sqrt{2}}{21}$ ]

15. If  $x = 2 - \sqrt{3}$ , find the value of  $x + \frac{1}{x}$  [Ans. 4]

16. Simplify  $\frac{5+\sqrt{6}}{5-\sqrt{6}}$  [Ans.  $\frac{31+10\sqrt{6}}{19}$ ]

17. Write  $\left(\frac{1}{9}\right)^{\frac{-1}{2}} \times (64)^{\frac{-1}{3}}$  as a rational number [Ans.  $\frac{3}{4}$ ]

18. If  $8^{x+1} = 64$ , what is the value of  $3^{2x+1}$  [Ans. 27]

19. If  $x = 2$  and  $y = 4$ , then  $\left(\frac{x}{y}\right)^{x-y} + \left(\frac{y}{x}\right)^{y-x}$  will be \_\_\_\_\_? [Ans. 8]

20. Is '-2' a rational number. Explain [Ans. Yes]

## Chapter – 2

## POLYNOMIALS

### Multiple Choice Questions (1 Marks)

1. Which one is not a polynomial

(a)  $4x^2 + 2x - 1$

(b)  $y + \frac{3}{y}$

- (c)  $x^3 - 1$   
 (d)  $y^2 + 5y + 1$  [Ans. B]
2. The polynomial  $px^2 + qx + rx^3 + 5$  is of type  
 (a) linear  
 (b) quadratic  
 (c) cubic  
 (d) Biquadratic [Ans. C]
3. Identify the polynomial  
 (a)  $x^{-2} + x^{-1} + 5$   
 (b)  $x^2 + 5\sqrt{x} + 7$   
 (c)  $\frac{1}{x^3} + 7$   
 (d)  $3x^2 + 7$  [Ans. D]
4. The zero of the polynomial  $p(x) = 2x + 5$  is  
 (a) 2  
 (b) 5  
 (c)  $\frac{2}{5}$   
 (d)  $-\frac{5}{2}$  [Ans. d]
5. The number of zeros of  $x^2 + 4x + 2$   
 (a) 1  
 (b) 2  
 (c) 3  
 (d) none of these [Ans. b]
6. The polynomial of type  $ax^2 + bx + c$ ,  $a = 0$  is of type  
 (a) linear  
 (b) quadratic  
 (c) cubic  
 (d) Biquadratic [Ans. a]
7. The value of  $k$ , if  $(x - 1)$  is a factor of  $4x^3 + 3x^2 - 4x + k$ , is  
 (a) 1  
 (b) 2  
 (c)  $-3$   
 (d) 3 [Ans. c]
8. The degree of polynomial  $p(x) = -2$  is  
 (a) 0  
 (b) 2  
 (c) 1  
 (d) 3 [Ans. a]
9. If  $3 + 5 - 8 = 0$ , then the value of  $(3)^3 + (5)^3 - (8)^3$  is  
 (a) 260  
 (b)  $-360$   
 (c)  $-160$   
 (d) 160 [Ans. b]
10. If value of  $104 \times 96$  is  
 (a) 9984  
 (b) 9469  
 (c) 10234  
 (d) 11324 [Ans. a]
11. The value of  $5.63 \times 5.63 + 11.26 \times 2.37 + 2.37 \times 2.37$  is  
 (a) 237  
 (b) 126  
 (c) 56  
 (d) 64 [Ans. d]

12. The value of  $\frac{8^3+5^3}{8^2-8\times 5+5^2}$
- (a) 13
  - (b) 15
  - (c) 17
  - (d) 19
- [Ans. a]
13. If  $x + y = 3$ ,  $x^2 + y^2 = 5$  then  $xy$  is
- (a) 1
  - (b) 3
  - (c) 2
  - (d) 5
- [Ans. c]
14. If  $x + 2$  is a factor of  $x^3 - 2ax^2 + 16$ , then value of  $a$  is
- (a) 3
  - (b) 1
  - (c) 4
  - (d) 2
- [Ans. b]
15. If one of the factor of  $x^2 + x - 20$  is  $(x + 5)$ . Find the other
- (a)  $x - 4$
  - (b)  $x + 2$
  - (c)  $x + 4$
  - (d)  $x - 5$
- [Ans. A]

**Short Answer Questions (2 marks)**

16. Divide  $x^6 + 2x^4 + 6x - 9$  by  $x^3 + 3$ . Ans.  $x^3 + 2x - 3$
17. Find the value of polynomial  $x^4 - 2x^3 + 3x^2 - 4x + 5$  at  $x = -1$ . Ans. 15
18. Give one example each of a linear, quadratic, cubic and constant polynomial.
19. Define zero or root of a polynomial.
20. State remainder theorem and factor theorem.