

## KENDRIYA VIDYALAYA IIT CAMPUS CHENNAI

### HOLIDAY HOME WORK FOR CLASS- IX

- WRITE DOWN ALL THE FORMULAE IN A SEPARATE NOTE BOOK OF 50 PAGES

#### **NAMELY:**

#### 2D-SHAPES-

- FORMULAE FOR AREA, PERIMETER AND VOLUME FOR THE 2D SHAPES NAMELY SQUARE, RECTANGLE, TRIANGLE, PARALLELOGRAM, RHOMBUS AND TRAPEZIUM.

#### 3D SHAPES-

- FORMULAE FOR CURVED SURFACE AREA, TOTAL SURFACE AREA AND VOLUME FOR THE 3D SHAPES NAMELY CUBE, CUBOID, CYLINDER, CONE, SPHERE AND HEMISPHERE.
- COMPLETE THE GIVEN WORK SHEETS ( IN A4 SHEETS )
- WRITE MULTIPLICATION TABLES TWICE FROM 2 TO 16 (UPTO 16X16)( IN A4 SHEETS)

## NUMBER SYSTEMS

MCQ

1 Mark

1. A Rational number equivalent to  $\frac{5}{7}$  is  
(a)  $\frac{15}{17}$  (b)  $\frac{25}{27}$  (c)  $\frac{10}{14}$  (d)  $\frac{10}{27}$
2. Given rational number  $-\frac{5}{9}$ . This rational number can also be known as  
(a) a natural number (b) a whole number  
(c) a fraction (d) a real number
3. The rational number  $0.\bar{3}$  can be also written as  
(a) 0.3 (b)  $\frac{3}{10}$  (c) 0.33 (d)  $\frac{1}{3}$
4. If the decimal representation of a number is non-terminating, non-repeating then the number is  
(a) a natural number (b) a rational number  
(c) a whole number (d) an irrational number
5. A rational number between  $\frac{1}{7}$  and  $\frac{2}{7}$  is  
(a)  $\frac{1}{14}$  (b)  $\frac{2}{21}$  (c)  $\frac{5}{14}$  (d)  $\frac{5}{21}$
6. The number 1.101001000100001.... is  
(a) a natural number (b) a whole number  
(c) a rational number (d) a irrational number
7. On dividing  $6\sqrt{27}$  by  $3\sqrt{2}$ , we get  
(a)  $3\sqrt{9}$  (b) 6 (c) 9 (d) none of these
8. The number  $(3-\sqrt{3})(3+\sqrt{3})$  expression  $\frac{1}{\sqrt{12}}$  we multiply and divide by  
a.  $\frac{1}{\sqrt{12}}$  b. 12 c.  $\sqrt{2}$  d.  $\sqrt{3}$

2 Marks

13. Write two irrational numbers between 0.21 and 0.22222.....

(2)

14. Recall,  $\pi$  is defined as the ratio of circumference (say  $c$ ) of a circle of diameter (say  $d$ ). That is,  $\pi = c/d$ , this seems to contradict the fact that  $\pi$  is irrational. How will you resolve this contradiction.

15. Simplify:  $(64/125)^{-2/3}$

16. Multiply:  $3\sqrt{7}$  by  $\sqrt{5}$

17. Divide:  $3\sqrt{128}$  by  $5\sqrt{64}$

18. Simplify:  $7^{1/2}, 8^{1/2}$

19. Prove that  $\sqrt{3}-\sqrt{2}$  is an irrational number.

20. If  $x = 9-4\sqrt{5}$ , find the value of  $x^2+1/x^2$

3 MARKS

21. Which of the following are rational or irrational numbers?

a.  $(2+\sqrt{3})^2$

b.  $(3+\sqrt{4})^2$

22. Simplify  $4+\sqrt{5}/4-\sqrt{5} + 4-\sqrt{5}/4+\sqrt{5}$

23. Find  $x^2$  if  $x = 2x(\sqrt{2} + \sqrt{6}) / 3x(\sqrt{2} + \sqrt{3})$

24. Evaluate: a.  $(3^2 + 4^2)^{1/2}$  b.  $(1^3 + 2^3 + 3^3)^{1/2}$

25.  $x=3+2\sqrt{2}$ , find the value of  $x^4+1/x^4$

4 MARKS

26. Represent  $\sqrt{5}$  on the number line.

27. Locate  $\sqrt{3}$  on the number line.

28. Prove that  $1/2+\sqrt{3} + 2/\sqrt{5}-\sqrt{3}+1/2-\sqrt{5}=0$

29. Rationalise the denominator of  $6/2+\sqrt{3} + \sqrt{7}$

30. Simplify  $\frac{\sqrt{6}/\sqrt{2}+\sqrt{3}+3\sqrt{2}}{\sqrt{6}+\sqrt{3}-4\sqrt{3}} \cdot \frac{\sqrt{6}+\sqrt{3}}{\sqrt{6}+\sqrt{3}}$

POLYNOMIALS :

- The polynomial  $2x^2 - x^2 + 5$  is
  - an equation
  - a binomial
  - a trinomial
  - a monomial
- The coefficient of  $x^3$  in the polynomial  $5x^2 + 2x - 7 - 4x^3$  is
  - 5
  - 2
  - 4
  - 4
- The degree of the polynomial  $p(x) = 4$  is
  - 1
  - 0
  - 4
  - not defined
- The degree of the polynomial  $(y^3 - 2)(y^2 + 11)$  is
  - 2
  - 3
  - 0
  - 5
- Degree of the polynomial  $2x^3 - 5\sqrt{x} + 3x - 4$ 
  - 3
  - 1/2
  - 1
  - none of these
- Given a polynomial  $P(t) = t^4 - t^3 + t^2 + 6$ , then  $p(-1)$  is
  - 1
  - 1
  - 0
  - 1/2
- Zero of the polynomial  $p(x)$ , where  $p(x) = a(x) + 1$ ,  $a$  not equal to zero, is
  - 1
  - a

c.0 d.-1/a

8. Which of the following is the zero of a polynomial  $x^2 - 5x + 6$  is

a.3 b.-3

c.5 d.6

9. If polynomial  $p(x) = 3x^4 - 4x^3 - 3x - 1$  is divided by  $(x-1)$ , then the remainder is

a.3 b.-4

c.-1 d.  $p(1)$

10. If  $(x-1)$  is a factor of  $kx^2 - \sqrt{2}x + 1$  then the value of  $k$  is

a.1 b.  $\sqrt{2} + 1$

c.  $\sqrt{2} - 1$  d.  $-\sqrt{2} - 1$

### 2 MARKS

11. find zero of the polynomial in each of the following cases –

a.  $p(x) = x+5$  b.  $p(x) = ax$ , and  $a$  not zero

c.  $p(x) = cx+d$ ,  $c$  is not zero,  $c, d$  are real numbers

12. Evaluate the following

a.  $102 \times 106$  b.  $103 \times 96$  c.  $95 \times 97$  d.  $98 \times 99$

e.  $46 \times 48$

13. without actually calculating the cubes find the value of

$(25)^3 + (-17)^3 + (-8)^3$ .