**SUMMER VACATION HOMEWORK**

**CLASS 9TH MATHS**

 **UNIT 1 NUMBER SYSTEM**

**1.) Can we write 0 in the form of p/q?**

a. Yes

b. No

c. Cannot be explained

d. None of the above

**2.) The three rational numbers between 3 and 4 are:**

a. 5/2,6/2,7/2

b. 13/4,14/4,15/4

c. 12/7,13/7,14/7

d.11/4,12/4,13/4

**3.) In between any two numbers there are:**

a. Only one rational number

b. Many rational numbers

c. Infinite rational numbers

d. No rational number

**4.) Every rational number is:**

a. Whole number

b. Natural number

c. Integer

d. Real number

**5.) √9 is a \_\_\_\_\_\_\_\_\_\_ number.**

a. Rational

b. Irrational

c. Neither rational or irrational

d. None of the above

**6.) Which of the following is an irrational number?**

a. √16

b. √(12/3)

c. √12

d. √100

**7.) 3√6 + 4√6 is equal to:**

a. 6√6

b. 7√6

c. 4√12

d. 7√12

**8.) √6 x √27 is equal to:**

a. 9√2

b. 3√3

c. 2√2

d. 9√3

**9.) Which of the following is equal to x3?**

a. x6-x3

b. x6.x3

c. x6/x3

d. (x6)3

**10.) Which of the following are irrational numbers?**

a. √23

b. √225

c. 0.3796

d. 7.478478

 **EXTRA QUESTIONS OF NUMBER SYSTEM**

Q.1: Find five rational numbers between 1 and 2.

Q.2: Find five rational numbers between 3/5 and 4/5.

Q.3: Locate √3 on the number line.

Q.4: Are the square roots of all positive integers irrational? If not, give an example of the square root of a number that is a rational number.

Q.5: Find the decimal expansions of 10/3, 7/8 and 1/7.

Q.6: Show that 0.3333… = 0.3-  can be expressed in the form p/q, where p and q are integers and q ≠ 0.

Q.7: What can the maximum number of digits be in the repeating block of digits in the decimal expansion of 1/17? Perform the division to check your answer.

Q.8: Find three different irrational numbers between the rational numbers 5/7 and 9/11.

Q.9: Visualize 3.765 on the number line, using successive magnification

Q.10: Add 2√2+ 5√3 and √2 – 3√3.

Q.11: Simplify: (√3+√7) (√3-√7).

Q.12: Rationalize the denominator of 1/[7+3√3].

Q.13: Represent √(9.3) on the number line.

Q.14: Simplify:

(i) 72/3 \* 71/5 (ii) 101/2/101/4

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**UNIT 2 POLYNOMIAL**

**MULTIPLE CHOICE QUESTIONS**

**1) x2-2x+1 is a polynomial in:**

a. One Variable

b. Two Variables

c. Three variable

d. None of the above

**2) The coefficient of x2 in 3x3+2x2-x+1 is:**

a. 1

b. 2

c. 3

d. -1

**3) A binomial of degree 20 in the following is:**

a. 20x + 1

b. x/20 + 1

c. x20 +1

d. x2+20

**4) The degree of 4x3-12x2+3x+9 is**

a. 0

b. 1

c. 2

d. 3

**5) x2 – x is \_\_\_\_\_\_\_\_ polynomial.**

a. Linear

b. Quadratic

c. Cubic

d. None of the above

**6) x – x3 is a \_\_\_\_\_\_\_\_ polynomial.**

a. Linear

b. Quadratic

c. Cubic

d. None of the above

**7) 1+3x is a \_\_\_\_\_\_\_\_\_ polynomial.**

a. Linear

b. Quadratic

c. Cubic

d. None of the above

**8) The value of f(x) = 5x−4x2+3 when x = -1, is:**

a. 3

b. -12

c. -6

d. 6

**9) The value of p(t) = 2+t+2t2−t3 when t=0 is**

a. 2

b. 1

c. 4

d. 0

**10) The zero of the polynomial f(x) = 2x+7 is**

a. 2/7

b. -2/7

c. 7/2

d. -7/2

**EXTRA QUESTIONS OF POLYNOMIAL**

1. Find value of polynomial 2x2 + 5x + 1 at x = 3.
2. Check whether at x = -1/6 is zero of the polynomial p(a) = 6a + 1.
3. Divide 3a2 + x – 1 by a + 1.
4. Find value of k, if (a – 1) is factor of p(a) = ka2 – 3a + k.
5. **Find the value of x3 + y3 + z3 – 3xyz if x2 + y2 + z2 = 83 and x + y + z = 15**
6. Find the value of the polynomial 5x – 4x2 + 3 at x = 2 and x = –1
7. **Give an example of a monomial and a binomial having degrees as 82 and 99 respectively.**
8. **Compute the value of 9x2 + 4y2 if xy = 6 and 3x + 2y = 12.**
9. **Calculate the perimeter of a rectangle whose area is 25x2 – 35x + 12.**
10. Factorise each of the following:
	* 4x2+ 9y2 + 16z2 + 12xy – 24yx – 16xz
	* 2x2 + y2 + 8z2 – 2√2xy + 4√2yz – 8xz

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 UNIT 3 COORDINATE GEOMETRY

MULTIPLE CHOICE QUESTIONS

**1) The name of horizontal line in the cartesian plane which determines the position of a point is called:**

a. Origin

b. X-axis

c. Y-axis

d. Quadrants

**2) The name of vertical line in the cartesian plane which determines the position of a point is called:**

a. Origin

b. X-axis

c. Y-axis

d. Quadrants

**3) The section formed by horizontal and vertical lines determining the position of point in a cartesian plane is called:**

a. Origin

b. X-axis

c. Y-axis

d. Quadrants

**4) The point of intersection of horizontal and vertical lines determining the position of point in a cartesian plane is called:**

a. Origin

b. X-axis

c. Y-axis

d. Quadrants

**5) If the coordinates of a point are (0, -4), then it lies in:**

a. X-axis

b. Y-axis

c. At origin

d. Between x-axis and y-axis

**6) If the coordinates of a point are (3, 0), then it lies in:**

a. X-axis

b. Y-axis

c. At origin

d. Between x-axis and y-axis

**7) If the coordinates of a point are (-3,4), then it lies in:**

a. First quadrant

b. Second quadrant

c. Third quadrant

d. Fourth quadrant

**8) If the coordinates of a point are (-3,-4), then it lies in:**

a. First quadrant

b. Second quadrant

c. Third quadrant

d. Fourth quadrant

**9) Points (1,2), (-2,-3), (2,-3);**

a. First quadrant

b. Do not lie in the same quadrant

c. Third quadrant

d. Fourth quadrant

**10) If x coordinate of a point is zero, then the point lies on:**

a. First quadrant

b. Second quadrant

c. X-axis

d. Y-axis

  **EXTRA QUESTIONS OF COORDINATE GEOMETRY**

1. Points A (5, 3), B (–2, 3) and D (5, –4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.
2. Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the third quadrant.
3. Plot the points (x, y) given by the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 2 | 4 | -3 | -2 |
| y | 4 | 2 | 0 | 5 |

4. Plot the following points and write the name of the figure obtained by joining them in order:

P(– 3, 2), Q (– 7, – 3), R (6, – 3), S (2, 2)

5. Locate the points (5, 0), (0, 5), (2, 5), (5, 2), (–3, 5), (–3, –5), (5, –3) and (6, 1) in the Cartesian plane.

**Q.6: Write the answer to each of the following questions:**

**(i) What is the name of the horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?**

**(ii) What is the name of each part of the plane formed by these two lines?**

**(iii) Write the name of the point where these two lines intersect**

**Q.7: Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **x** | **-2** | **-1** | **0** | **1** | **3** |
| **y** | **8** | **7** | **-1.25** | **3** | **-1** |