JK PUBLIC SCHOOL, KUNJWANI

Chapter–1: Number Systems

Class: 9th   **Assignment No.- 01**   **Subject: Mathematics**

1. Represent the following irrational numbers on number line.

    i) $\sqrt{10}$ ii) $\sqrt{17}$ iii) $2+\sqrt{2}$

2. Represent geometrically $\sqrt{8.1}$ on number line.

3. Write the following numbers in p/q form   (i) $2.0\overline{15}$ (ii) $0.\overline{235}$

4. Find two rational numbers and two irrational numbers between $\sqrt{2}$ and $\sqrt{3}$.

5. Simplify: (i) $2\sqrt{50}+3\sqrt{32}+4\sqrt{18}$

              (ii) $\sqrt[4]{16}-6\sqrt[3]{343}+18\sqrt[5]{243}-\sqrt{196}$

6. If $x=3+2\sqrt{2}$, Check whether $x+\dfrac{1}{x}$ is rational or irrational.

7. If $x=2+\sqrt{3}$, find $\left(x+\dfrac{1}{x}\right)^{3}$.

8. If x=5-2 $\sqrt{6}$, find $x^{2}+\dfrac{1}{x^{2}}$.

9. Simplify: $\sqrt[4]{\sqrt[3]{x^{2}}}$ in exponential form.

10. If x, y, z are positive real numbers and p, q, r are natural numbers such that x^p=y^q=z^r, then prove that $\dfrac{2}{q}=\dfrac{1}{p}+\dfrac{1}{r}$.

Chapter –2: Polynomials

Class: 9th   **Assignment No.- 02**   **Subject: Mathematics**

1. If -1 is a zero of the polynomial $p(x) = ax^3 - x^2 + x + 4$, find the value of a.

2. For what value of m, is the polynomial $x^3 - 2mx^2 + 16$ divisible by $(x+2)$?

3. If the polynomials $px^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + p$ are divided by x-3, then the remainder in each case is the same. Find the value of p.

4. If the polynomials $p(x) = 2x^3 + bx^2 + 3x - 5$ and $q(x) = x^3 + x^2 - 4x - b$ leave the same remainder, when divided by x-2.

5. Divide $3x^3 - 8x^2 + 3x + 2$ by $x^2 - 3x + 2$ and verify the division algorithm.

6. The polynomials $ax^3 - 3x^2 + 4$ and $2x^3 - 5x + a$, when divided by $(x-2)$, leave the remainders p and q are respectively. If p -2 q=4,find the value of a.

7. Factorise: $x^2 + 3\sqrt{2}x + 4$.

8. Factorise : $(x^2 - 2x)^2 - 11(x^2 - 2x) + 24$.

9. If $x+y+2 = 0$, then write the value of $x^3 + y^3 + 8$.

10. Find the value of $(x-y)^3 + (y-z)^3 + (z-x)^3$.

11. If $2x+3y=8$ and $xy=4$, then find the value of $4x^2 + 9y^2$.

12. If $2x+y = -5$, prove that $8x^3 + y^3 - 30xy + 125 = 0$.

13. If $a+b+c = 6$ and $a^2+b^2+c^2=20$, find $ab+bc+ca$.

14. If $x + y + z = 1$, $xy + yz + zx = -1$, and $xyz = -1$, find the value of $x^3 + y^3 + z^3$.

15. If $f(x) = x^4 - 2x^3 + 3x^2 - ax + b$ is dimensions divided by $(x-1)$ and $(x+1)$, it leaves the remainders 5 and 19 respectively. Find 'a' and 'b'.
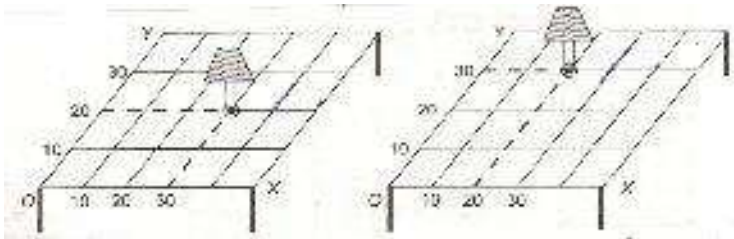
Chapter –3: Coordinate Geometry

Class: 9th   **Assignment No.- 03**   **Subject: Mathematics**

1. Write the coordinates of a point which:-
   i) Lies on the x-axis and is at a distance of 4 units to the right of the origin.
   ii) Lies on the y-axis and is at a distance of y units below the x-axis.
   iii) Is at a distance of 3 units from the x-axis and 7 units from the y-axis. [there would be four such points].

2. Draw the graphs of the equations:
   i) $3x – 2y = 7$ ii) $y = 2$

   on the same pair of axes. Read the coordinates of their point of intersection.

3. Find the point where the line represented by the equation $5y – 3x – 10 = 0$ cuts the y-axis.

4. Draw the graph of the line $3x + 4y = 18$. With the help of graph find value of y when x = 2. (show this point on the graph)

5. On a graph draw a quadrilateral whose vertices are (1,1), (2,4), (8,4) and (10,1). Justify the quadrilateral.

6. How will you describe the position of the table lamp on your study table to another person?

7. Draw the graph of $y = 2x + 4$. Use the graph to find the area between the line and the axes.

8. in which quadrant will the point lie, if:-
   i) ordinate is 3 and abscissa is – 7
   ii) abscissa is – 10 and ordinate is – 4
   iii) Ordinate is 4 and abscissa is – 6.

9. Fill in the blanks.
   i) The coordinates of the origin 0 are ………………………
   ii) The y coordinate of every point on the x-axis is …………….………
   iii) Distance along the x-axis is called ………………………
   iv) Distance along the y-axis is called ………………………
   v) The point (x,y) = (y,x) only if ………………………

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