

(9th) Number systems: Level -1

Q1) Find 3 rational numbers between $\frac{1}{2}$ and $\frac{1}{3}$.

Q2) Convert $0.\bar{6}$ on p/q form

Q3) Find decimal value of $\frac{17}{8}$

Q4) Rationalise the denominator of : $\frac{5}{\sqrt{2} + \sqrt{3}}$

Q5) Evaluate $(27)^{\frac{1}{3}} + (128)^{\frac{1}{4}}$

(9th) Number systems: Level -2

Q1) Evaluate : $4\sqrt{3} - 3\sqrt{75} + 2\sqrt{75}$ (8 $\sqrt{3}$)

Q2) Rationalise: $\frac{30}{5\sqrt{3} - 3\sqrt{5}}$ (5 $\sqrt{3} + 3\sqrt{5}$)

Q3) If $x = 3 - 2\sqrt{2}$ then find value of $x - \frac{1}{x}$ (-4 $\sqrt{2}$)

Q4) If $a=2$ and $b=3$ then find the value of $(a^a + b^a)$ to the power -1 (1/13)

Q5) If $x - \frac{1}{x} = 3$ then find $x^3 - \frac{1}{x^3}$. (36)

Q6) Represent $\sqrt{4.3}$ on number line.

Q7) $\frac{\sqrt{2} - \sqrt{5}}{\sqrt{2} + \sqrt{5}} = a + b\sqrt{10}$ find a, b . (a = -7/3, b = 2 $\sqrt{10}$ /3)

Q8) If $x = 2 + \sqrt{3}$ then find value of $x^2 + \frac{1}{x^2}$ (14)

Q9) Find the decimal value of $\frac{1}{7}$ (0.142857...)

Q10) Simplify: $\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} + \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$ (8)

(9th) Polynomials: Level -1

- Q1) Write a binomial with degree 3.
Q2) If $(x+3)$ is a factor of $x^2 + 3x + a$ then find the value of a .
Q3) Factorise : $x^2 + 6x + 8$
Q4) Find the remainder when $x^3 - 4x + 8$ is divided by $x-1$.
Q5) Evaluate $(102)^2$ using suitable identity.

(9th) Polynomials: Level -2

- Q1) $p(x) = 3x^2 - 1$ verify if $x = -1/\sqrt{3}$ is a zero of this polynomial. (yes)
Q2) If the polynomials $2x^3 + bx^2 + 3x - 5$ and $x^3 + x^2 - 4x + b$ leave the same remainder when divided by $x-2$ then prove that $b = -13/3$
Q3) if $a + b = 12$ and $ab = 27$ then find the value of $a^3 + b^3$ (756)
Q4) Evaluate $(28)^3 + (-15)^3 + (-13)^3$ without calculating cubes. (16380)
Q5) Factorise $x^4 + x^2 + 1$ (x^2+1-x)
 (x^2+1+x)
Q6) $a + b + c = 5$ and $ab + bc + ca = 10$ then prove $a^3 + b^3 + c^3 - 3abc = -25$
Q7) For what value of a the polynomial $2x^3 + ax^2 + 11x + a + 3$ is exactly divisible by $2x - 1$. ($a = -7$)
Q8) Factorise: $4(x^2 + 1)^2 + 13(x^2 + 1) - 12$ ($(4x^2+1)(x^2+5)$)
Q9) Factorise $x^4 - y^4$
Q10) $x = 2y + 6$ then find value of $x^3 - 8y^3 - 36xy - 216$ (0)