

Maths Work Sheet

Class - X

Chapter:- Polynomials

Q01 :} Find the Zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients:-

- a) $5x^2 - 29x + 20$
- b) $2\sqrt{2}x^2 - 9x + 5\sqrt{2}$
- c) $3\sqrt{3}x^2 - 19x + 10\sqrt{3}$
- d) $x^2 - x - 72$
- e) $x^2 - 2$
- f) $x^2 - 5x$
- g) $x^2 - 9$

Q02 :} Form the Quadratic polynomials whose zeros are:-

- a) $3 \pm \sqrt{2}$
- b) $-\sqrt{2}$ and $\sqrt{2}$
- c) $\frac{1}{3}$ and $\frac{1}{4}$
- d) -5 and -3
- e) 3 and $\frac{1}{5}$
- f) $\frac{1}{a}$, $\frac{1}{b}$

Q03 :} Find all the Zeroes of $x^3 + 6x^2 + 11x + 6$ if $(x + 1)$ is a factor.

Q04 :} Find all the Zeroes of $x^3 - 10x^2 + 31x - 30$ if 2 is a zero of it.

Q05 :} Find the values of a and b , if 2 and 3 are zeroes of $x^3 + ax^2 + bx - 30$.

Q06 :} Divide $x^4 - 4x^3 + 8x^2 + 7x + 10$ by $(x - 2)$ and verify the division algorithm.

Q07 :} Find the value of k if $(x - 2)$ is a factor of $x^2 - kx + 10$.

Q08 :} Find the value of k if 2 is zero of $3x^2 - 17x + k$.

Q09 :} Find all the zeroes of $4x^4 - 20x^3 + 23x^2 + 5x - 6$ if two of its zeroes are 2 & 3 .

Q10 :} If α and β are the zeroes of $x^2 + 5x + 6$ find the value of $\alpha^{-1} + \beta^{-1}$.

Q11 :} If $\frac{1}{2}$ and 1 are zeroes of $2x^4 - 3x^3 - 3x^2 + 6x - 2$, find the other zeroes.

Q12 : If -5 and 7 are zeroes of $x^4 - 6x^3 - 26x^2 + 138x - 35$ find the other zeroes.

Q13 : If one of the zeroes of the polynomial $5z^2 + 13z - p$ is the reciprocal of the other, find p .

Q14 : On dividing the polynomial $4x^4 - 3x^3 - 42x^2 - 55x - 17$ by the polynomial $g(x)$ the quotient is $x^2 - 3x - 5$ and the remainder is $5x + 8$. Find $g(x)$.

Q15 : If $\frac{1}{2}$ and 1 are zeroes of $2x^4 - 3x^3 - 3x^2 + 6x - 2$, find the other zeroes.

Q16 : Verify that $1, -2$ and $\frac{1}{2}$ are zeroes of $2x^3 + x^2 - 5x + 2$. Also verify the relationship between the zeroes and the coefficients.

Q17 : If α and β are the zeroes of quadratic polynomial $x^2 - kx + 15$ such that $(\alpha + \beta)^2 - 2\alpha\beta = 34$, find k .

Q18 : If one zero of polynomial $2x^2 - 3x + p$ is 3 , then find the other root(zero). Also find the value of p .

Q19 : If one zero of polynomial $2x^2 + px + 4$ is 2 , find the other zero. Also find p .

Q20 : If α and β are the zeroes of the quadratic polynomial $ax^2 + bx + c$, find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$.

Q21 : If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is the reciprocal of the other, find a .

Q22 : If α and β are the zeroes of $2x^2 - 9x + 10$, form the polynomial whose zeroes are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$.

Q23 : Divide $2x^2 + 4x^3 + 5x - 6$ by $2x^2 + 1 + 3x$ and verify the division algorithm.

Q24 : The curve which represents a quadratic polynomial meets the x axis at $(2, 0)$ and $(-2, 0)$. Form the quadratic polynomial.

Q25 : What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$, so that the difference is exactly divisible by $4x^2 + 3x - 2$?

Q26 : Find the values of a and b such that $x^4 + x^3 + 8x^2 + ax + b$ is exactly divisible by $x^2 + 1$?

Q27 : If the polynomial $P(x) = x^4 - 6x^3 + 16x^2 - 25x + 10$ divided by $x^2 - 2x + k$, the remainder is $x + a$. Find k and a .

Q28 : The zeroes of $x^2 - kx + 6$ are in the ratio $3:2$, find k .