



WORK SHEET

CLASS: IX SUBJECT: MATHEMATICS LESSON: POLYNOMIALS
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1. Find the zeroes of the following polynomials:
i) $x+1$ ii) $2x-1$ iii) $x-\sqrt{3}$ iv) $3x-\pi$
v) $3x+2$ vi) $\sqrt{2}x-1$ vii) $(x-1)(x+2)$ viii) $ax+b$
2. Verify whether $\frac{1}{2}$ and -1 are zeroes of the polynomial $f(x) = 2x^2 + x - 1$
3. If -2 is a zero of the polynomial $3x^2 + 2x + k$, find the value of k .
4. Find the remainder when $p(x) = 4x^3 - 12x^2 + 14x - 3$ is divided by $x - \frac{1}{2}$
5. Verify whether $f(x) = 4x^3 + 4x^2 - x - 1$ is exactly divisible by $2x + 1$
6. Find the value of 'a' so that $p(x) = x^3 - ax^2 - 13x + 15$ is exactly divisible by $x - 1$
7. If $x - 1$ and $x + 3$ are factors of $x^3 - ax^2 - 13x + b$, find the values of a and b .
8. Find the values of a and b so that $x - 1$ and $x + 2$ are factors of $f(x) = 2x^3 + ax^2 + bx - 14$
9. If $p(x) = ax^3 + 4x^2 + 3x - 4$ and $q(x) = x^3 - 4x + a$ leave the same remainder when divided by $x - 3$, find the value of a

10. Factorise by splitting the middle term:

i) $3x^2 - 14x + 8$ ii) $4x^2 - 17x - 21$ iii) $5x^2 - 16x - 21$
iv) $6x^2 - x - 15$ v) $7x^2 - 16x + 4$ vi) $8x^2 - 6x - 9$

11. Factorise using factor theorem:

i) $x^3 + 6x^2 + 11x + 6$ ii) $x^3 + 4x^2 + x - 6$
iii) $x^3 - 13x - 12$ iv) $2x^3 + 3x^2 - 3x - 2$

12. Factorise using suitable identities:

i) $4x^2 - 36x + 81$ ii) $x^2 + 2 + \frac{1}{x^2}$ iii) $x^3 - x$
iv) $x^3 + 3x^2 + 3x + 1$ v) $25x^2 - 9y^2$ vi) $x^3 + 1$
vii) $x^3 - 3x + \frac{3}{x} - \frac{1}{x^3}$ viii) $x^3 - 8y^3$
ix) $a^3 + b^3 - 1 + 3ab$ x) $a^2 + b^2 + 2ab + 2a + 2b + 1$

13. Evaluate using suitable identities:

i) 103^2 ii) 98×102 iii) 18×8
iv) $(13)^3$ v) 51×49 vi) 97^2
vii) $51^2 - 49^2$ viii) 103×102 ix) $(-19)^3 + 10^3 + 9^3$

14. If $x^2 + 25x + 84 = (x+a)(x+b)$
find the values of a and b .

15. If $x^2 + 5\sqrt{5}x + 30 = (x+a)(x+3\sqrt{5})$ find a .

16. Factorise $x^2 - 8x + 15$ by using Factor Theorem.

17. If $2x^3 + 5x^2 + 5x + k$ is exactly divisible by $x^2 + x + 1$ find the value of k