SUCCESS INSTITUTE — Assignment - 21.2 — 9th Class Expert

Q1. If 2 is a zero of the polynomial $2x^2 + px - 14$, then find the value of p. Ans. 3

Q2. If $x = 3$ is one root of the quadratic equation $x^2 - 2kx - 6 = 0$, then find the value of k. Ans. k = $\frac{1}{2}$

Q3. If $x = -2$ is one root of the quadratic equation $3x^2 + 5x + 2k = 0$, then find the value of k. Ans. $k = -1$

Q4. If $x = -5$ is one root of the quadratic equation $2x^2 + px - 15 = 0$, then find the value of p. Ans. p = 7

Q5. If $\frac{1}{2}$ is a zero of the polynomial $2x^2 + kx - 12$, then find the value of k. Ans. 23

Q6. If $\frac{4}{3}$ is a root of the polynomial $6k^3 - 11x^2 + kx - 20$, then find the value of k. Ans. 19

Q7. If $-\frac{1}{2}$ is a root of the polynomial $8x^3 - ax^2 - x + 2$, then find the value of a. Ans. 6

Q8. Find the value of k, if $x - 1$ is a factor of $p(x)$ in each of the following :

(i) $p(x) = 4x^3 + 3x^2 - 4x + k$. (ii) $p(x) = x^2 + x + k$ (iii) $p(x) = 2x^2 + kx + \sqrt{2}$

(iv) $p(x) = kx^2 - \sqrt{2}x + 1$ (v) $p(x) = kx^2 - 3x + k$

Ans. 8 (i) $k = -3$ (ii) -2 (iii) $-(2 + \sqrt{2})$ (iv) $\sqrt{2} - 1$ (v) $\frac{3}{2}$

Q9. Find the value of a, if $x - a$ is the factor of $x^3 - ax^2 + 2x + a - 1$. Ans. a = $\frac{1}{3}$

Q10. Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $x - 1$. Ans. 2

Q11. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by

(i) $x + 1$ (ii) $x - \frac{1}{2}$ (iii) x (iv) $x + \pi$ (v) $5 + 2x$

Ans. 11 (i) 0 (ii) $\frac{27}{8}$ (iii) 1 (iv) $-\pi^3 + 3\pi^2 - 3\pi + 1$ (v) $-\frac{27}{8}$

Q12. Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by $x - a$. Ans. 5a

Q13. If $x^{49} + 49$ is divided by $(x + 1)$, then what is the remainder ? Ans. 48

Q14. Find the remainder when the polynomial $p(y) = y^4 - 3y^2 + 2y + 6$ is divided by $y + 1$. Ans. 2

Q15. Find the remainder when $p(x) = 4x^3 - 12x^2 + 14x - 3$ is divided by $g(x) = 2x - 1$. Ans. $\frac{1}{2}$

Q16. Find the remainder when $p(x) = x^3 - 6x^2 + 2x - 4$ is divided by $g(x) = 1 - \frac{3}{2}x$. Ans. $\frac{-136}{27}$

Q17. Find the remainder when the polynomial is divided by $q(x) = 1 - 2x$. Ans. $-\frac{35}{8}$

Q18. By actual division, find the quotient and remainder when $p(x) = 8x^3 - x^2 + 2x - 3$ is divided by $x - 1$.

Q19. By actual division, find the quotient and remainder when $p(x) = x + 3x^2 - 1$ is divided by $1 + x$.

Q20. By actual division, find the quotient and remainder when $p(x) = x^3 + 1$ is divided by $x + 1$.

Q21. By actual division, find the quotient and remainder when $p(x) = 3x^4 - 4x^3 - 3x - 1$ is divided by $x - 1$.

Q22. By actual division, find the quotient and remainder when $p(x) = 2x^3 + 3x^2 - 9x + 4$ is divided by $2x - 1$.

Q23. By actual division, find the quotient and remainder when $p(x) = x^4 - 1$ is divided by $x - 1$.

Q24. By actual division, find the quotient and remainder when $p(x) = x^3 - 6x^2 + 2x - 4$ is divided by $1 - 2x$.

Q25. By actual division, find the quotient and remainder when $p(x) = 9x^3 - 3x^2 + x - 5$ is divided by $x - \frac{2}{3}$.

Ans. 18 Quotient = $8x^2 + 7x + 9$ Remainder = 6

Ans. 19 Quotient = $3x - 2$ Remainder = 1

Ans. 20 Quotient = $x^2 - x + 1$ Remainder = 0

Ans. 21 Quotient = $3x^3 - x^2 - x - 4$ Remainder = -5

Ans. 22 Quotient = $x^2 + 2x - \frac{7}{2}$ Remainder = $\frac{1}{2}$

Ans. 23 Quotient = $x^3 + x^2 + x + 1$ Remainder = 0

Ans. 24 Quotient = $\frac{x^2}{2} - \frac{11x}{4} - \frac{3}{8}$ Remainder = $\frac{-35}{8}$

Ans. 25 Quotient = $9x^2 + 3x + 3$ Remainder = -3

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