



India's Number 1 Education App

MATHS

BOOKS - KUMAR PRAKASHAN KENDRA MATHS (GUJRATI ENGLISH)

POLYNOMIALS

Sums Of Enrich Remember

1. Find the degree of each of the polynomials given below :

$$x^5 - x^4 + 3$$



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2. Find the degree of each of the polynomials given below :

$$2 - y^3 + 2y^8$$



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3. Find the degree of each of the polynomials given below :

2



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4. Find the value of each of the following polynomials at the indicated value of variables :

$$p(x) = 5x^2 - 3x + 7 \text{ at } x = 1.$$



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5. Find the value of each of the following polynomials at the indicated value of variables :

$$q(y) = 3y^3 - 4y + \sqrt{11} \text{ at } y = 2.$$



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6. Find the value of each of the following polynomials at the indicated value of variables :

$$p(t) = 4t^4 + 5t^3 - t^2 + 6 \text{ at } t = a.$$



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7. Check whether -2 and 2 are zeroes of the polynomial $x+2$.



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8. Find a zero of the polynomial $p(x) = 2x + 1$.



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9. Verify whether 2 and 0 are zeroes of the polynomial $x^2 - 2x$.



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10. Divide $p(x)$ by $g(x)$, where $p(x) = x + 3x^2 - 1$ and $g(x) = 1 + x$.



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11. Divide the polynomial $3x^4 - 4x^3 - 3x - 1$ by $x-1$.



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12. Find the remainder obtained on dividing $p(x) = x^3 + 1$ by $x + 1$.



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13. Find the remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divide by $x-1$.



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14. Check whether the polynomial $q(t) = 4t^3 + 4t^2 - t - 1$ is a multiple of $2t + 1$.



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15. Examine whether $x+2$ is a factor of $x^3 + 3x^2 + 5x + 6$ and of $2x + 4$.



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16. Find the value of k , if $x-1$ is a factor of $4x^3 + 3x^2 - 4x + k$.



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17. Factorise $6x^2 + 17x + 5$ by splitting the middle term, and by using the factor theorem.



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18. Factorise $y^2 - 5y + 6$ by using the factor theorem.



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19. Factorise $x^3 - 23x^2 + 142x - 120$



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20. Find the following products using appropriate identities :

$$(x + 3)(x+3)$$



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21. Find the following products using appropriate identities :

$$(x-3)(x+5)$$



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22. Evaluate 105×106 without multiplying directly.



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23. Factorise :

$$49a^2 + 70ab + 25b^2$$



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24. Factorise :

$$\frac{25}{4}x^2 - \frac{y^2}{9}$$



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25. Write $(3a + 4b + 5c)^2$ in expanded form.



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26. Expand $(4a - 2b - 3c)^2$.



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27. Factorise $4x^2 + y^2 + z^2 - 4xy - 2yz + 4xz$.



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28. Write the following cubes in the expanded form :

$$(3a + 4b)^3$$



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29. Write the following cubes in the expanded form :

$$(5p - 3q)^3$$



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30. Evaluate each of the following using suitable identities :

$$(104)^3$$



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31. Evaluate each of the following using suitable identities :

$$(999)^3$$



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32. Factorise : $8x^3 + 27y^3 + 36x^2y + 54xy^2$



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33. Factorise : $8x^3 + y^3 + 27z^3 - 18xyz$



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Exercise 2 1

1. Which of the following experiences are polynomials in one variable and which are not ? State reasons for your answer.

$$4x^2 - 3x + 7$$



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2. Which of the following experiences are polynomials in one variable and which are not ? State reasons for your answer.

$$y^2 + \sqrt{2}$$



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3. Which of the following experiences are polynomials in one variable and which are not ? State reasons for your answer.

$$3\sqrt{t} + t\sqrt{2}$$



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4. Which of the following experiences are polynomials in one variable and which are not ? State reasons for your answer.

$$y + \frac{2}{y}$$



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5. Which of the following experiences are polynomials in one variable and which are not ? State reasons for your answer.

$$x^{10} + y^3 + t^{50}$$



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6. Write the coefficients of x^2 in each of the following :

$$2 + x^2 + x$$



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7. Write the coefficients of x^2 in each of the following :

$$2 - x^2 + x^3$$



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8. Write the coefficients of x^2 in each of the following :

$$\frac{\pi}{2}x^2 + x$$



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9. Write the coefficients of x^2 in each of the following :

$$\sqrt{2}x - 1$$



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10. Give one example each of a binomial of degree 35 and of a monomial of degree 100.



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11. Write the degree of each of the following polynomials :

$$5x^3 + 4x^2 + 7x$$



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12. Write the degree of each of the following polynomials :

$$4 - y^2$$



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13. Write the degree of each of the following polynomials :

$$5t - \sqrt{7}$$



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14. Write the degree of each of the following polynomials :

3



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15. Classify the following as linear, quadratic and cubic polynomials :

$$x^2 + x$$



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16. Classify the following as linear, quadratic and cubic polynomials :

$$x - x^3$$



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17. Classify the following as linear, quadratic and cubic polynomials :

$$y + y^2 + 4$$



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18. Classify the following as linear, quadratic and cubic polynomials :

$$1 + x$$



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19. Classify the following as linear, quadratic and cubic polynomials :

$$3t$$





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20. Classify the following as linear, quadratic and cubic polynomials :

$$r^2$$



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21. Classify the following as linear, quadratic and cubic polynomials :

$$7x^3$$



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Exercise 2 2

1. Find the value of the polynomial $5x - 4x^2 + 3$ at $x = 0$.



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2. Find the value of the polynomial $5x - 4x^2 + 3$ at $x = -1$.



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3. Find the value of the polynomial $5x - 4x^2 + 3$ at $x = 2$.



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4. Find $p(0)$, $p(1)$ and $p(2)$ for each of the following polynomials :

$$p(y) = y^2 - y + 1$$



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5. Find $p(0)$, $p(1)$ and $p(2)$ for each of the following polynomials :

$$p(t) = 2 + t + 2t^2 - t^3$$



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6. Find $p(0)$, $p(1)$ and $p(2)$ for each of the following polynomials :

$$p(x) = x^3$$



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7. Find $p(0)$, $p(1)$ and $p(2)$ for each of the following polynomials :

$$p(x) = (x - 1)(x + 1)$$



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8. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) + 3x = 1, x = - \frac{1}{3}$$



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9. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = 5x - \pi, x = \frac{4}{5}$$



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10. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = x^2 - 1, x = 1, -1$$



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11. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = (x + 1)(x - 2), x = -1, 2$$



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12. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = x^2, x = 0$$



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13. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = lx + m, x = - \frac{m}{l}$$



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14. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = 3x^2 - 1, x = - \frac{1}{\sqrt{3}}, \frac{2}{\sqrt{3}}$$



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15. Verify whether the following are zeroes of the polynomial, indicated against them :

$$p(x) = 2x + 1, x = \frac{1}{2}$$



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16. Find the zero of the polynomial in each of the following cases :

$$p(x) = x + 5$$



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17. Find the zero of the polynomial in each of the following cases :

$$p(x) = x - 5$$



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18. Find the zero of the polynomial in each of the following cases :

$$p(x) = 2x + 5$$



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19. Find the zero of the polynomial in each of the following cases :

$$p(x) = 3x - 2$$



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20. Find the zero of the polynomial in each of the following cases :

$$p(x) = 3x$$



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21. Find the zero of the polynomial in each of the following cases :

$$p(x) = ax, a \neq 0$$



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22. Find the zero of the polynomial in each of the following cases :

$$p(x) = c x + d, c \neq 0, x, d \text{ are real numbers.}$$



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Exercise 2 3

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

$$x + 1$$



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

$$x - \frac{1}{2}$$



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

x



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

$x + \pi$



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

$5 + 2x$



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



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7. Check whether $7 + 3x$ is a factor of $3x^2 + 7x$.



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Exercise 2 4

1. Determine which of the following polynomials has $(x+1)$ a factor :

$$x^3 + x^2 + x + 1$$



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2. Determine which of the following polynomials has $(x+1)$ a factor :

$$x^4 + x^3 + x^2 + x + 1$$



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3. Determine which of the following polynomials has $(x+1)$ a factor :

$$x^4 + 3x^3 + 3x^2 + x + 1$$



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4. Determine which of the following polynomials has $(x+1)$ a factor :

$$x^3 - x^2 - (2 + \sqrt{2})x + \sqrt{2}$$



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5. Use the factor theorem to determine whether $g(x)$ is a factor of $p(x)$

in each of the following cases :

$$p(x) = 2x^3 + x^2 - 2x - 1$$



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6. Use the factor theorem to determine whether $g(x)$ is a factor of $p(x)$ in each of the following cases :

$$p(x) = x^3 + 3x^2 + 3x + 1, g(x) = x + 2$$



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7. Use the factor theorem to determine whether $g(x)$ is a factor of $p(x)$ in each of the following cases :

$$p(x) = x^3 - 4x^2 + x + 6, g(x) = x - 3$$



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

$$p(x) = x^2 + x + k$$



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

$$p(x) = 2x^2 + kx + \sqrt{2}$$



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

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



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

$$p(x) = kx^2 - 3x + k$$



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12. Factorise :

$$12x^2 - 7x + 1$$



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13. Factorise :

$$2x^2 + 7x + 3$$



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14. Factorise :

$$6x^2 + 5x - 6$$



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15. Factorise :

$$3x^2 - x - 4$$



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16. Factorise :

$$x^3 - 2x^2 - x + 2$$



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17. Factorise :

$$x^3 - 3x^2 - 9x - 5$$



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18. Factorise :

$$x^3 + 13x^2 + 32x + 20$$



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19. Factorise :

$$2y^3 + y^2 - 2y - 1$$



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Exercise 2 5

1. Use suitable identities to find the following products :

$$(x + 4)(x + 10)$$



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2. Use suitable identities to find the following products :

$$(x + 8)(x - 10)$$



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3. Use suitable identities to find the following products :

$$(3x + 4)(3x - 5)$$



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4. Use suitable identities of find the following products

$$\left(y^2 + \frac{3}{2}\right)\left(y^2 - \frac{3}{2}\right)$$



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5. Use suitable identities to find the following products :

$$(3 - 2x)(3 + 2x)$$



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6. Evaluate the following products without multiplying directly :

$$103 \times 107$$



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7. Evaluate the following products without multiplying directly :

$$95 \times 96$$



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8. Evaluate the following products without multiplying directly :

$$104 \times 96$$



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9. Factorise the following using appropriate identities :

$$9x^2 + 6xy + y^2$$



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10. Factorise the following using appropriate identities :

$$4y^2 - 4y + 1$$



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11. Factorise the following using appropriate identities :

$$x^2 - \frac{y^2}{100}$$



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12. Expand each of the following using suitable identities :

$$(x + 2x + 4z)^2$$



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13. Expand each of the following using suitable identities :

$$(2x - y + z)^2$$



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14. Expand each of the following using suitable identities :

$$(-2x + 3y + 2z)^2$$



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15. Expand each of the following using suitable identities :

$$(3a - 7b - c)^2$$



16. Expand each of the following using suitable identities :

$$(-2x + 5y - 3z)^2$$



17. Expand each of the following using suitable identities :

$$\left[\frac{1}{4}a - \frac{1}{2}b + 1 \right]^2$$



18. Factorise :

$$4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$$



19. Factorise :

$$2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$$



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20. Write the following cubes in expanded form :

$$(2x + 1)^3$$



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21. Write the following cubes in expanded form :

$$(2a - 3b)^3$$



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22. Write the following cubes in expanded form :

$$\left[\frac{3}{2}x + 1 \right]^3$$



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23. Write the following cubes in expanded form :

$$\left[x - \frac{2}{3}y \right]^3$$



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24. Evaluate the following using suitable identities :

$$(99)^3$$



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25. Evaluate the following using suitable identities :

$$(102)^3$$



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26. Evaluate the following using suitable identities :

$$(998)^3$$



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27. Factorise each of the following

(i) $8a^3 + b^3 + 12a^2 + 6ab^2$

(ii) $8a^3 - b^3 - 12a^2b + 6ab^2$

(iii) $1 - 64a^3 - 12a + 48a^2$

(iv) $8p^3 - \frac{12}{5}p^2 + \frac{6}{25}p - \frac{1}{125}$



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28. Factorise each of the following

(i) $8a^3 + b^3 + 12a^2 + 6ab^2$

(ii) $8a^3 - b^3 - 12a^2b + 6ab^2$

(iii) $1 - 64a^3 - 12a + 48a^2$

(iv) $8p^3 - \frac{12}{5}p^2 + \frac{6}{25}p - \frac{1}{125}$



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29. Factorise each of the following :

$$27 - 125a^3 - 135a + 225a^2$$



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30. Factorise each of the following :

$$64a^3 - 27b^3 - 144a^2b + 108ab^2$$



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31. Factorise each of the following :

$$27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$$



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32. Verify

(i) $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$

(ii) $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

using some non-zero positive integers and check by actual multiplication. Can you call these as identities ?



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33. Verify

(i) $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$

(ii) $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

using some non-zero positive integers and check by actual multiplication. Can you call these as identities ?



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34. Factorise each of the following :

$$27y^3 + 125z^3$$



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35. Factorise each of the following :

$$64m^3 - 343n^3$$



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36. Factorise $27x^3 + y^3 + z^3 - 9xyz$ using identity.



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37.

Verify

that

$$x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x + y + z) \left[(x - y)^2 + (y - z)^2 + (z - x)^2 \right]$$



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38. (a) If $x + y + z = 0$, show that $x^3 + y^3 + z^3 = 3xyz$.

(b) Show that

$$(a - b)^3 + (b - c)^3 + (c - a)^3 = 3(a - b)(b - c)(c - a)$$



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39. Without actually calculating the cubes, find the value of each of the following :

$$(-12)^3 + (7)^3 + (5)^3$$



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40. Without actually calculating the cubes, find the value of each of the following :

$$(28)^3 + (-15)^3 + (-13)^3$$



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41. Given possible expressions for the length and breadth of the rectangle whose area is given by

(i) $4a^2 + 4a - 3$

(ii) $25a^2 - 35a + 12$



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42. Give possible expressions for the length and breadth of each of the following reactangles in which their areas are given :

Area : $35y^2 + 13y - 12$



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43. What are the possible polynomial expressions for the dimensions of the cuboids whose volumes are given below ?

(i) $3x^2 - 12x$

(ii) $12y^2 + 8y - 20$.



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Skill Testing Exercise

1. State which of the following expressions are a polynomial in one variable and which are not :

$$5x^2 - 3x + 7$$



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2. State which of the following expressions are a polynomial in one variable and which are not :

$$16x^2 - 49y^2$$



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3. State which of the following expressions are a polynomial in one variable and which are not :

$$\sqrt{7}x^3 + \frac{5}{3}x^2 - 9x + 17$$



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4. State which of the following expressions are a polynomial in one variable and which are not :

$$7t^2 - 5t + 3$$



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5. State which of the following expressions are a polynomial in one variable and which are not :

$$x^3 + y^3 + z^3 - 3xyz$$



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6. State the coefficient of x^2 in each of the following polynomials :

$$-3x^2 + 5x + 11$$



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7. State the coefficient of x^2 in each of the following polynomials :

$$\frac{3}{2}x^2 - \frac{5}{4}x + 1$$



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8. State the coefficient of x^2 in each of the following polynomials :

$$x^3 + 3x^2 + 3x + 1$$



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9. State the coefficient of x^2 in each of the following polynomials :

$$\sqrt{2}x^2 + 7x - 4\sqrt{2}$$



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10. State the coefficient of x^2 in each of the following polynomials :

$$x^4 + 5x^3 + \pi x^2 - 3x + 11$$



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11. Give one example of a binomial of degree 50 and a monomial of degree 80.



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12. State the degree of each the following polynomials :

$$4x^3 + 2x^2 - 5x + 7$$



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13. State the degree of each the following polynomials :

$$\sqrt{2}x^2 - 5x^3 + 7x + \frac{1}{4}$$



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14. State the degree of each the following polynomials :

$$5 - 4x + x^2$$



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15. State the degree of each the following polynomials :

$$\pi x^3 + 5x^5 + 7x^2 - 12$$



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16. State the degree of each the following polynomials :

$$81 - 16x^2$$



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17. Classify the following polynomials into linear quadratic and cubic polynomials :

$$5x - 3$$



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18. Classify the following polynomials into linear quadratic and cubic polynomials :

$$2x^2 + 11x - 9$$



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19. Classify the following polynomials into linear quadratic and cubic polynomials :

$$8x^3 - 27$$



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20. Classify the following polynomials into linear quadratic and cubic polynomials :

$$4x - 9x^2 + 3$$



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21. Classify the following polynomials into linear quadratic and cubic polynomials :

$$9t^2$$



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22. Classify the following polynomials into linear quadratic and cubic polynomials :

$$27z^3$$



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23. Classify the following polynomials into linear quadratic and cubic polynomials :

$$7 - \sqrt{3}x$$



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24. Classify the following polynomials into linear quadratic and cubic polynomials :

$$4y$$



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25. Find the value of the polynomial $x^2 - 7x + 12$ at :

$$x=1$$



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26. Find the value of the polynomial $x^2 - 7x + 12$ at :

x=3



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27. Find the value of the polynomial $x^2 - 7x + 12$ at :

x = 5



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28. Find the value of the polynomial $x^2 - 7x + 12$ at :

x = 0



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29. For each of the following polynomials, find $p(0)$, $p(1)$ and $p(3)$:

$$p(x) = x^2 - 4x + 3$$



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30. For each of the following polynomials, find $p(0)$, $p(1)$ and $p(3)$:

$$p(y) = y^2 - 9$$



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31. For each of the following polynomials, find $p(0)$, $p(1)$ and $p(3)$:

$$p(x) = \frac{1}{3}x^2 + 4x - 1$$



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32. For each of the following polynomials, find $p(0)$, $p(1)$ and $p(3)$:

$$p(x) = t^3 + 2t^2 + t - 4$$



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33. Check whether the value of x given against each polynomial is a zero of that polynomial or not :

$$p(x) = x^2 - 5x + 4, x = 1, 4$$



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34. Check whether the value of x given against each polynomial is a zero of that polynomial or not :

$$p(x) = 4x - 1, x = 4, \frac{1}{4}$$



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35. Check whether the value of x given against each polynomial is a zero of that polynomial or not :

$$p(x) = x^2 + 7x + 6, x = -1, -6$$



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36. Check whether the value of x given against each polynomial is a zero of that polynomial or not :

$$p(x) = x^3 + 2x^2 - x - 2, x = 1, -1, -2, 2$$



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37. Check whether the value of x given against each polynomial is a zero of that polynomial or not :

$$p(x) = x^2 - 8x + 15, x = 3, 5$$



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38. Find the zero of each of the following polynomials :

$$p(x) = 4x - 7$$



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39. Find the zero of each of the following polynomials :

$$p(x) = 3x + 5$$



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40. Find the zero of each of the following polynomials :

$$p(y) = 11y - 44$$



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41. Find the zero of each of the following polynomials :

$$p(t) = \pi t + 7$$



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42. Find the zero of each of the following polynomials :

$$p(x) = -3x + 8$$



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43. Find the zero of each of the following polynomials :

$$p(x) = \frac{2}{3}x - \frac{5}{6}$$



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44. Divide the polynomial $x^2 - 10x + 21$ by each of the following divisors and find the remainder in each case :

$$x + 2$$



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45. Divide the polynomial $x^2 - 10x + 21$ by each of the following divisors and find the remainder in each case :

$$x - 3$$



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46. Divide the polynomial $x^2 - 10x + 21$ by each of the following divisors and find the remainder in each case :

$$x + 5$$



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47. Divide the polynomial $x^2 - 10x + 21$ by each of the following divisors and find the remainder in each case :

$$x - 7$$



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48. Divide the polynomial $x^3 - 4x^2 + 3x + 1$ by each of the following divisors and find the remainder in each case :

x-1



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49. Divide the polynomial $x^3 - 4x^2 + 3x + 1$ by each of the following divisors and find the remainder in each case :

x+1



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50. Divide the polynomial $x^3 - 4x^2 + 3x + 1$ by each of the following divisors and find the remainder in each case :

x-3



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51. Divide the polynomial $x^3 - 4x^2 + 3x + 1$ by each of the following divisors and find the remainder in each case :

$x+4$



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52. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x-1$



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53. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x+1$



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54. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x-2$



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55. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x+2$



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56. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x-3$



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57. With the help of the remainder theorem, find the remainder when the polynomial $x^3 + 2x^2 - 4x - 6$ is divided by each of the following divisors :

$x + 3$



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58. If $x+2$ is a factor of $x^3 + ax^2 + 11x + 6$, find the value of a .



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59. Find the remainder when $x^3 - ax^2 + 8x - a$ is divided by $x-a$.



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60. Check whether $5x + 1$ is a factor of $5x^3 + 26x^2 + 35x + 6$ or not.



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61. Check whether $x-1$ is a factor of $x^3 + 6x^2 - 2x - 5$ or not.



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62. Check whether $x=1$ is a factor of $x^3 + 9x^2 - 4x - 12$ or not.



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63. Check whether $x + 3$ is a factor of $x^3 + 2x^2 - 5x - 6$ or not.



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64. Check whether $x-4$ is a factor of $x^3 - 3x^2 - 6x + 8$ or not.



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65. If $x-1$ is a factor of $4x^3 + 3x^2 - 4x + k$, find the value of k .



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66. If $2x-1$ is a factor of $4x^3 - 16x^2 + 10x + k$, find the value of k .



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67. Check whether $2t + 1$ is a factor of $4t^3 + 4t^2 - t - 1$ or not.



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68. If $x-4$ is a factor of $x^3 - 5x^2 - px + 24$, find the value of p .



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69. If $x-3$ is a factor of $k^2x^3 - kx^2 + 3kx - k$, find the value of k .
 $(k \neq 0)$.



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70. Without performing the long division, show that
 $3x^4 + 4x^3 - 12x^2 - x - 30$ is a multiple of $x^2 + x - 6$.



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71. Factorise :

$$10x^2 + 7x + 1$$



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72. Factorise :

$$5x^2 - 18x - 8$$



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73. Factorise :

$$6x^2 + 13x + 6$$



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74. Factorise :

$$12x^2 + x - 6$$



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75. Factorise :

$$2x^2 - 9x - 35$$



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76. Factorise :

$$x^3 + 8x^2 + 19x + 12$$



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77. Factorise :

$$x^3 - 4x^2 - 7x + 10$$



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78. Factorise :

$$2x^3 + 7x^2 + 2x - 3$$



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79. Factorise :

$$3x^3 + 14x^2 - 7x - 10$$



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80. Factorise :

$$6x^3 + 13x^2 + 9x + 2$$



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81. Expand :

$$(2x + 3)(2x - 5)$$



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82. Expand :

$$(3x - 2)(3x - 5)$$



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83. Expand :

$$(2x^2 + 1)(2x^2 + 7)$$



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84. Expand :

$$(5x + 2y)(5x + 4y)$$





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85. Expand :

$$(7a + b)(7a - 3b)$$



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86. Expand :

$$(2x + 7)(2x - 7)$$



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87. Expand :

$$(5x + 3y)(5x - 3y)$$



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88. Expand :

$$(4t + 5)(4t - 5)$$



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89. Expand :

$$(5a - 4b)(5a + 4b)$$



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90. Expand :

$$\left(\frac{1}{2}x + \frac{1}{3}y\right)\left(\frac{1}{2}x - \frac{1}{3}y\right)$$



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91. Expand :

$$(a + 2b - 3c)^2$$



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92. Expand :

$$(5x + y + 2z)^2$$



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93. Expand :

$$(-x - 2y + 3)^2$$



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94. Expand :

$$(x + 2y + 7z)^2$$



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95. Expand :

$$\left(\frac{1}{2}x - \frac{1}{3}y - \frac{1}{5}z \right)^2$$



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96. Expand :

$$(2x + 3y)^3$$



Watch Video Solution

97. Expand :

$$(4x - y)^3$$



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98. Expand :

$$\left(\frac{1}{2}a - \frac{1}{4}b \right)^3$$



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99. Expand :

$$(3x + 7y)^3$$



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100. Evaluate each of the following using proper identity :

$$82 \times 85$$



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101. Evaluate each of the following using proper identity :

$$51 \times 57$$



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102. Evaluate each of the following using proper identity :

$$66 \times 74$$



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103. Evaluate each of the following using proper identity :

$$97 \times 103$$



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104. Evaluate each of the following using proper identity :

$$(72)^2$$



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105. Evaluate each of the following using proper identity :

$$(98)^2$$



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106. Evaluate each of the following using proper identity :

$$(41)^3$$



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107. Evaluate each of the following using proper identity :

$$(103)^3$$



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108. Evaluate each of the following using proper identity :

$$(123)^3$$





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109. Evaluate each of the following using proper identity :

$$(79)^3$$



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110. Factorise :

$$64x^2 - 81y^2$$



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111. Factorise :

$$9x^2 - 30xy + 25y^2$$



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112. Factorise :

$$\frac{1}{9}a^2 - \frac{1}{49}b^2$$



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113. Factorise :

$$49x^2 + 28xy + 4y^2$$



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114. Factorise :

$$4x^2 + 9y^2 + z^2 + 12xy - 6yz - 4zx$$



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115. Factorise :

$$x^2 + 4y^2 + 25z^2 - 4xy + 20yz - 10zx$$



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116. Factories :

$$121x^2 - 289$$



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117. Factorise :

$$\frac{9}{25}x^2 - \frac{3}{5}xy + \frac{1}{4}y^2$$



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118. Factorise :

$$9x^2 + 25y^2 + 49z^2 - 30xy - 70yz + 42zx$$



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119. Factorise :

$$8a^3 + 27b^3 + 36a^2b + 54ab^2$$



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120. Factorise :

$$27x^3 - 64y^3 - 108x^2y + 144xy^2$$



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121. Factorise :

$$8x^3 - 125y^3 - 60x^2y + 150xy^2$$



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122. Factorise :

$$8x^3 + 27y^3$$





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123. Factorise :

$$125x^3 - 64y^3$$



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124. Factorise :

$$\frac{1}{8}a^3 + \frac{1}{125}b^3$$



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125. Factorise :

$$64x^3 + 125y^3$$



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126. Factorise :

$$x^3 - 27$$



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127. Factorise :

$$a^3 + 27b^3 + 64c^3 - 36abc$$



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128. Factorise :

$$x^3 + 8y^3 + 64z^3 - 24xyz$$



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129. Factorise :

$$8x^3 - 27y^3 + z^3 + 18xyz$$



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130. Evaluate each of the following using proper identity :

$$15^3 - 9^3 - 6^3$$



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131. Evaluate each of the following using proper identity :

$$25^3 - 30^3 + 5^3$$



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132. Evaluate each of the following using proper identity :

$$18^3 + 12^3 - 30^3$$



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133. Evaluate each of the following using proper identity :

$$15^3 + 35^3 - 50^3$$



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Multiple Choice Questions Mcqs

1. The value of $p(x) = x^3 + x^2 - 3x - 3$ at $x = -1$ is

A. 1

B. - 1

C. 0

D. - 3

Answer:



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2. For the polynomial $p(x)$, if $p(2) = 0$, then is a factor of $p(x)$.

A. $(x - 2)$

B. $(x + 2)$

C. $(x^2 - 2)$

D. $(x^2 + 2)$

Answer: B



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3. Dividing $2x^3 + 6x^2 + x + 5$ by $(x+3)$, the remainder is

A. 2

B. 3

C. 1

D. 0

Answer: B



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4. should be subtracted from $x^3 + 3x^2 + 2x + 10$, so that the result is exactly divisible by $(x+3)$.

A. 1

B. 2

C. 3

D. 4

Answer: D



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5.should be added to $x^3 - 5x^2 + x - 8$, so that the result is exactly divisible by $(x-5)$.

A. 2

B. - 2

C. - 3

D. 3

Answer: C



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6. is one of the zeros of the polynomial $x^3 - 6x^2 + 2x - 12$.

A. 2

B. - 2

C. 6

Answer:



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7. If $x+3$ is a factor of $x^3 + 6x^2 + 11x + k$, then $k =$.

A. 2

B. 3

C. 4

D. 6

Answer:



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8. Should be added to $x^2 - 8$, so that the result is exactly divisible by $(x+3)$.

A. 1

B. - 1

C. 3

D. - 3

Answer: A



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9. Find the value of k, if $x-1$ is a factor of $4x^3 + 3x^2 - 4x + k$.

A. 4

B. 1

C. 3

Answer: C



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10.is one of the factors of

$$2x^4 + x^3 - 14x^2 - 19x - 6.$$

A. $(x - 1)$

B. $(x + 1)$

C. $(x + 3)$

D. $(x - 2)$

Answer: A



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11. When $x^3 + 64$ is divided by $x+4$, the quotient is

A. $(x - 4)$

B. $(x + 8)$

C. $(x + 16)$

D. $x^2 - 4x + 16$

Answer: A::B::D



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12. $x^3 + 3x^2 + 3x + 2 = (x + 2) (.....)$

A. $x - 2$

B. $x^2 + 1$

C. $x^2 - x - 1$

D. $x^2 + x + 1$

Answer: A::B



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13. The factors of $x^2 - x - 12$ are

A. $(x + 6)$ and $(x - 2)$

B. $(x - 4)$ and $(x - 3)$

C. $(x + 4)$ and $(x + 3)$

D. $(x - 4)$ and $(x + 3)$

Answer: A::C::D



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14. The factors of $x^2 - 100$ are

A. $(x - 20)$ and $(x - 5)$

B. $(x - 25)$ and $(x - 4)$

C. $(x - 10)^2$

D. $(x + 10)$ ad $(x - 10)$

Answer: A::D



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15. $x^2 - 2 + \frac{1}{x^2} = \dots$

A. $\left(x + \frac{1}{x}\right)\left(x - \frac{1}{x}\right)$

B. $\left(x - \frac{1}{x}\right)^2$

C. $\left(x - \frac{1}{x}\right)^3$

D. $\left(x + \frac{1}{2}\right)^2$

Answer: A::B



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16. If $x^2 + mx - 28 = (x - 7)(x + 4)$, then m =

A. 3

B. -3

C. 11

D. -11

Answer: C



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17. 105×95

A. 9500

B. 10500

C. 9925

D. 9975

Answer:



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18. $(110)^3 = \dots$

A. 330

B. 3300

C. 33000

D. 13,31,000

Answer: A::C



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19. Evaluate each of the following using proper identity :

$$15^3 - 9^3 - 6^3$$

A. 1215

B. 2430

C. - 810

D. 810

Answer: B::C::D



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20. If $x + 3$ is one of the factors $x^3 + 2x^2 - ax - 18$ then $a = \dots\dots\dots$.

A. 3

B. - 3

C. 9

D. – 9

Answer: 9



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