MATHS

BOOKS - MBD

Polynomials

Exercise

1. Classify the following as linear, quadratic and cubic polynomial : $x^2 + x$.

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2. Classify the following as linear, quadratic and cubic polynomial : $x - x^3$.

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3. Classify the following as linear, quadratic and cubic polynomial : $y + y^2 + 4$.

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4. Classify the following as linear, quadratic and cubic polynomial : $1 + x$.

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5. Classify the following as linear, quadratic and cubic polynomial : $3t$.

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6. Classify the following as linear, quadratic and cubic polynomial : r^2.

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7. Classify the following as linear, quadratic and cubic polynomial : $7x^3$.

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8. The following expression is polynomial or not ? State reasons for your answer. $x^2 + x^{-1} + 2$.

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9. The following expression is polynomial or not ? State reasons for your answer. $x^3 + 2x^2 + x + \sqrt{7}$.

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10. The following expression is polynomial or not ? State reasons for your answer. $x^4 + x^3 + x^2 + \sqrt{x} + 1$.

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11. The following expression is polynomial or not ? State reasons for your answer. $y + \frac{1}{y}$.

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12. The following expression is polynomial or not ? State reasons for your answer. $\sqrt[3]{x} + x^2$.

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13. Write the following polynomial in the standard form, also write the degree. $12x^4 + 5x - 3x^3 + 7 - 11x^2$.

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14. Write the following polynomial in the standard form, also write the degree. $6x^2 - 7x + 2x^3 + 13x^5$.

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15. Write the following polynomial in the standard form, also write the degree. $10x^2 + 9 + 6x^3 - x$.

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16. Write the following polynomial in the standard form, also write the degree. $3x + 16x^3 + 15x^4 - x^2 - 1$.

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17. Write the following polynomial in the standard form, also write the degree. $10 + x^2 - 3x$.

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18. Write the following polynomial in the standard form, also write the degree. $2 + x$.

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19. Write the following polynomial in the standard form, also write the degree. 5.

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20. Write the following polynomial in the standard form, also write the degree. $-x^4 + 3 + x^5$.

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21. Write the following polynomial in the standard form, also write the degree. $-y^2 + 2y^8 - y^3 + 2$.

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22. Classify the following as monomial, binomial and trinomial : 3x.

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23. Classify the following as monomial, binomial and trinomial : $x^2 - 5x$.

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24. Classify the following as monomial, binomial and trinomial : $x^3 - x^2 + 4x$.

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25. Classify the following as monomial, binomial and trinomial : $-5x^3$.

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26. Classify the following as monomial, binomial and trinomial : $y^3 + 1$.

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27. Classify the following as monomial, binomial and trinomial : $\sqrt{2} + x - x^2$.

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28. Classify the following as monomial, binomial and trinomial : $y^4 + y + 5$.

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29. Classify the following polynomial as linear, quadratic and cubic : $3x^2 + 7x + 5$.

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30. Classify the following polynomial as linear, quadratic and cubic : $x - 5$.

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31. Classify the following polynomial as linear, quadratic and cubic : $x^3 + 9x^2 + x + 7$.

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32. Classify the following polynomial as linear, quadratic and cubic : $x^2 - 9$.

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33. Classify the following polynomial as linear, quadratic and cubic : $x^3 + 3x - 5$.

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34. Classify the following polynomial as linear, quadratic and cubic : x.

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

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

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

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38. Find $p(0), p(1)$ and $p(2)$ for the following polynomial : $p(y) = y^2 - y + 1$.

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39. Find $p(0), p(1)$ and $p(2)$ for the following polynomial : $p(t) = 2 + t + 2t^2 - t^3$.

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40. Find $p(0), p(1)$ and $p(2)$ for the following polynomial : $p(x) = x^3$.

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41. Find $p(0), p(1)$ and $p(2)$ for the following polynomial : $p(x) = (x - 1)(x + 1)$.

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42. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = 3x + 1, x = -\frac{1}{3}$.

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43. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = 5x - \pi, x = \frac{4}{5}$.

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44. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = x^2 - 1, x = 1, -1$.

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45. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = (x + 1)(x - 2), x = -1, 2$.

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46. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = x^2, x = 0.$

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47. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = lx + m, x = -\frac{m}{l}.$

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48. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = 3x^2 - 1, x = -\frac{1}{\sqrt{3}}, \frac{2}{\sqrt{3}}.$

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49. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = 2x + 1, x = \frac{1}{2}.$

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50. Find the zero of the polynomial in the following : $p(x) = x + 5$ is real number.

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51. Find the zero of the polynomial in the following : $p(x) = x - 5$ is real number.

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52. Find the zero of the polynomial in the following : $p(x) = 2x + 5$ is real number.

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53. Find the zero of the polynomial in the following : $p(x) = 3x - 2$ is real number.

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54. Find the zero of the polynomial in the following : $p(x) = 3x$ is real number.

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55. Find the zero of the polynomial in the following : $p(x) = ax, a \neq 0$ is real number.

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56. Find the zero of the polynomial in the following : $p(x) = cx + d, c \neq 0, c, d$ is real number.

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57. Find the value of the following polynomial at the indicated value of variable : $p(x) = 5x^2 - 3x + 7$ at $x = 1$.

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58. Find the value of the following polynomial at the indicated value of variable : $p(x) = 3y^3 - 4y + 4$ at $y = 2$.

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59. Find the value of the following polynomial at the indicated value of variable : $p(t) = 4t^4 + 5t^3 - t^2 + 6$ at $t = -1$.

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60. Find $p(-1), p(2)$ and $p(-3)$ for the following polynomial : $p(x) = 5 - x.$

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61. Find $p(-1), p(2)$ and $p(-3)$ for the following polynomial : $p(y) = y^3 - y^2 + 7$

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62. Find $p(-1), p(2)$ and $p(-3)$ for the following polynomial : $p(t) = (t-5)(t+8).$

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63. Find $p(-1), p(2)$ and $p(-3)$ for the following polynomial : $p(x) = 3x^2 - 7x + 12.$

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64. Verify whether the indicated number is zero of the polynomial corresponding to it : $p(x) = 7x - 1, x = \frac{1}{7}$.

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65. Verify whether the indicated number is zero of the polynomial corresponding to it : $p(x) = 3x + 8, x = -\frac{8}{3}$.

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66. Verify whether the indicated number is zero of the polynomial corresponding to it : $p(x) = x^2 - 9, x = 3, -3$.

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67. Verify whether the indicated number is zero of the polynomial corresponding to it : $p(x) = ax - b, x = \frac{b}{a}$.

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68. Find the zero of the polynomial in the following : $p(x) = 2x - 7$, is real number.

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69. Find the zero of the polynomial in the following : $p(x) = 5x$, is real number.

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70. Find the zero of the polynomial in the following : $p(y) = y + 8$, is real number.

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71. Find the zero of the polynomial in the following : $p(x) = 9x + 4$, is real number.

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72. Find the zero of the polynomial in the following : $p(y) = my + n, m \neq 0, m \text{ and } n$, is real number.

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73. On dividing $x^3 + 3x^2 + 3x + 1$ by x we get remainder :

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74. On dividing $x^3 + 3x^2 + 3x + 1$ by $x - \frac{1}{2}$ we get remainder :

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75. On dividing $x^3 + 3x^2 + 3x + 1$ by x we get remainder :

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

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

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78. Use the Factor Theorem to determine whether g(x) is a factor of p(x) in each of the following cases:

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

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79. Use the factor theorem to determine whether g (x) is a factor of p (x) in the following case : $p(x) = x^3 + 3x^2 + 3x + 1, g(x) = x + 2.$

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80. Use the factor theorem to determine whether g (x) is a factor of p (x) in the following case : $p(x) = x^3 - 4x^2 + x + 6, g(x) = x - 3.$

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81. Find the value of k, if $x-1$ is a factor of $p(x)$ of the following case : $p(x)=x^2+x+k.$

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82. Find the value of k, if $x-1$ is a factor of $p(x)$ of the following case : $p(x)=2x^2+kx+\sqrt{2}.$

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83. Find the value of k, if $x-1$ is a factor of $p(x)$ of the following case : $p(x)=kx^2-\sqrt{2}x+1.$

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84. Find the value of k, if $x-1$ is a factor of $p(x)$ of the following case : $p(x)=kx^2-3x+k.$

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85. Factorise : $12x^2 - 7x + 1$.

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86. Factorise : $2x^2 + 7x + 3$.

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87. The factors of $6x^2 + 5x - 6$ are :

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88. Factorise : $3x^2 - x - 4$.

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89. Factorise : $x^3 - 2x^2 - x + 2$.

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90. Factorise : $x^3 - 3x^2 - 9x - 5$.

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91. Factorise : $x^3 + 13x^2 + 32x + 20$.

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92. Factorise : $2y^3 + y^2 - 2y - 1$.

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93. Use factor theorem to verify in the following that $q(x)$ is a factor of $p(x) = 2x^3 + 5x^2 - 3x - 4, q(x) = x - 1.$

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94. Use factor theorem to verify in the following that $q(x)$ is a factor of $p(x) = x^3 + 3x + 4, q(x) = x + 1.$

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95. Use factor theorem to verify in the following that $q(x)$ is a factor of $p(x) = 3x^6 - 7x^5 + 7x^4 - 3x^3 + 2x^2 - 2, q(x) = x - 1.$

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96. Use factor theorem to verify in the following that $q(x)$ is a factor of $p(x) = 2x^3 - 9x^2 + x + 12, q(x) = 2x - 3.$

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97. Use factor theorem to verify in the following that $q(x)$ is a factor of $p(x) = 3x^3 + x^2 - 20x + 12, q(x) = 3x - 2.$

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98. Find the value of k if (x-2) is a factor of $2x^3 - 6x^2 + 5x + k.$

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99. Find the value of k if (x+3) is a factor of $3x^2 + kx + 6.$

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100. for what value of k is $y^3 + ky + 2k - 2$ exactly divisible by (y+1) ?

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101. For what value of m is $2x^3 + mx^2 + 11x + m + 3$ exactly divisible by (2x-1) ?

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102. Find the value of a if $2y + 3$ is a factor of $2y^3 + 9y^2 - y - a$.

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

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104. For what value of a is the polynomial $2x^4 - ax^3 + 4x^2 + 2x + 1$ is divisible by 1 -2x?

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105. Find the value of a if x + a is a factor of $x^3 + ax^2 - 2x + a + 4$.

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106. Find the value of a if x + a is a factor of $x^4 - a^2x^2 + 3x - a$.

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107. Using factor theorem, show that a - b is the factor of $a(b^2 - c^2) + b(c^2 - a^2) + c(a^2 - b^2)$.

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108. Factorise $x^2 + 5x + 6$

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109. Using factor theorem, factorize the polynomial $x^2 - 7x + 12$.

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110. Using factor theorem, factorize the polynomial $x^2 - 5x - 6$.

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111. Find the remainder when $x^{51} + 51$ is divided by x + 1.

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112. Factorise : $x^3 - 10x^2 - 53x - 42$.

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113. Factorise : $x^3 + 13x^2 + 31x - 45$.

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114. Factorise : $y^3 - 2y^2 - 29y - 42$.

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115. Use the suitable identity to find the following product : $(x + 4)(x + 10)$.

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116. Use the suitable identity to find the following product : $(x + 8)(x - 10)$.

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117. Use the suitable identity to find the following product : $(3x + 4)(3x - 5)$.

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118. Use the suitable identity to find the following product : $\left(y^2 + \frac{3}{2}\right)\left(y^2 - \frac{3}{2}\right)$.

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119. Use the suitable identity to find the following product : $(3 - 2x)(3 + 2x)$.

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120. Evaluate the following product without multiplying directly : 103×107.

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121. Evaluate the following product without multiplying directly : 95×96.

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122. Evaluate the following product without multiplying directly : 104×96.

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123. Factorise the following using appropriate identities : $9x^2 + 6xy + y^2$.

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124. Factorise the following using appropriate identities : $4y^2 - 4y + 1$

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125. Factorise the following using appropriate identities : $x^2 - \frac{y^2}{100}$.

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126. Expand the following using suitable Identities : $(x + 2y + 4z)^2$.

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127. Expand the following using suitable Identities : $(2x - y + z)^2$.

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128. Expand the following using suitable Identities : $(-2x+3y+2z)^2$.

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129. Expand the following using suitable Identities : $(3a-7b-c)^2$.

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130. Expand the following using suitable Identities : $(-2x+5y-3z)^2$.

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131. Expand the following using suitable Identities : $\left[\frac{1}{4}a-\frac{1}{2}b+1\right]^2$.

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

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

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134. Write the following cube in expanded : $(2x + 1)^3.$

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135. Write the following cube in expanded : $(2a - 3b)^3.$

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136. Write the following cube in expanded : $\left[\frac{3}{2}x+1\right]^3$.

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137. Write the following cube in expanded : $\left[x-\frac{2}{3}y\right]^3$.

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138. Evaluate the following using suitable identity : $(99)^3$.

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139. Evaluate the following using suitable identity : $(102)^3$.

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140. Evaluate the following using suitable identity : $(998)^3$.

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141. Factorise the following : $8a^3 + b^3 + 12a^2b + 6ab^2$.

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142. Factorise each of the following: $8a^3 - b^3 - 12a^2b + 6ab^2$

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143. Factorise the following : $27 - 125a^3 - 135a + 225a^2$.

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144. Factorise the following : $64a^3 - 27b^3 - 144a^2b + 108ab^2$.

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145. Factorise the following : $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p.$

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146. Verify : $x^3 + y^3 = (x + y)(x^2 - xy + y^2).$

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147. Verify : $x^3 - y^3 = (x - y)(x^2 + xy + y^2).$

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148. Factorise the following : $27y^3 + 125z^3.$

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149. Factorise the following : $64m^3 - 343n^3$.

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150. Factorise : $27x^3 + y^3 + z^3 - 9xyz$.

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151. ਜਾਂਚ ਕਰੋ:-

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

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152. Write the following in expanded form : $\left(-\frac{1}{3}a + \frac{b}{a} - \frac{c}{3}\right)^2$.

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153. Write the following in expanded form : $(x+y+3z)^2$.

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154. Write the following in expanded form : $(2m+3n-4p)^2$.

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155. Write the following in expanded form : $\left(-x^2-y^2+z\right)^2$.

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156. Simplify : $(x-y+2z)^2+(2x+y-z)^2$.

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157. Simplify : $(-x-y-z)^2-(x+y-z)^2$.

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158. If $a+b+c=12$ and $ab+bc+ca=47$, find the value of $a^2+b^2+c^2$.

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159. If $a+b+c=29$ and $a^2+b^2+c^2=305$, find the value of $ab+bc+ca$.

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160. If x = 1, y = 3, z = 4, find the value of $x^2+9y^2+4z^2-6xy+12yx-4zx$.

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161. Write the following in expanded form : $\left(\frac{1}{3}x + 2y\right)^3$.

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162. Write the following in expanded form : $\left(x^2 - y^2\right)^3$.

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163. Write the following in expanded form : $\left(x - \frac{1}{3}\right)^3$.

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164. Simplify : $(2x + y)^3 + (x - y)^3$.

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165. Simplify : $(3x+2y)^3-(5x+y)^3$.

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166. Simplify : $\left(x-\frac{1}{3}y\right)^3-\left(\frac{1}{3}x-y\right)^3$.

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167. Simplify : $\left(x^2-y\right)^3-\left(x^2+y\right)^3$.

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168. Find the value of $x^3+\frac{1}{x^3}$ if $\left(x+\frac{1}{x}\right)=11$.

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169. If $x - \frac{1}{x} = 5$, find the value of $x^3 - \frac{1}{x^3}$.

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170. Find the value of : $x^3 + \frac{y^3}{8}$ if $x + \frac{y}{2} = 9$ and $xy = 4$.

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171. Find the value of : $64a^3 + 125b^3$, if $4a + 5b = -22, ab = -12$.

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172. Find the value of : $27x^3 - y^3$ if $3x - y = 8$ and $xy = 3$.

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173. Find the value of : $m^3 - \frac{1}{n^3}$, if $m - \frac{1}{n} = \frac{13}{2}$ and $\frac{m}{n} = \frac{7}{2}$.

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174. Evaluate the following using the identity : $(97)^3$.

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175. Evaluate the following using the identity : $(306)^3$.

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176. Evaluate the following using the identity : $(10.4)^3$.

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177. Evaluate the following using the identity : $(996)^3$.

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178. Evaluate the following using the identity : $(99.5)^3$.

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179. Factorise the following expression :

$9x^2 + y^2 + 16z^2 + 6xy + 8yz + 24zx.$

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180. Factorise the following expression :

$3x^2 + 27y^2 + z^2 - 18xy + 6\sqrt{3}yz - 2\sqrt{3}zx.$

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181. Factorise the following expression : $x^2 + y^2 + z^2 + 2xy - 2yz - 2zx.$

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182. Factorise the expression : $27x^3 + 8y^3 + 54x^2y + 36xy^2.$

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183. Factorise the expression : $125x^3 - \frac{y^3}{216} - \frac{25}{2}x^2y + \frac{5}{12}xy^2.$

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184. Factorise the expression : $8x^3 - 27y^{\#} + z^3 - 18xyz.$

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185. Factorise the expression : $\frac{1}{27}x^3 - y^3 + 125z^3 + 5xyz.$

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186. Factorise the expression : $-27x^3 + y^3 - z^3 - 9xyz.$

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187. Factorise the expression : $x^3 - 8y^3 - 64z^3 - 24xyz.$

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188. Which one of the following is not a polynomial ?

A. $3z^3 - \sqrt{5}z + 9$

B. $3\sqrt{z} + 4z + 5z^2$

C. sqrt(ax)+x^2-x^3`

D. $y^2 + 6y - 5.$

Answer:

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189. Polynomial $2y^2 - 4y + 3$ is :

A. Monomial

B. Binomial

C. Trinomial

D. None.

Answer:

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190. Polynomial $t^2 - 4$ is :

A. Binomial

B. Monomial

C. Trinomial

D. None.

Answer:

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191. Polynomial $x3$ is :

A. Monomial

B. Binomial

C. Trinomial

D. None.

Answer:

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192. In $2 + x^2 + x$ the coefficient of x^2 is :

A. 2

B. 1

C. -1

D. -2.

Answer:

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193. In $2 - x^2 + x^3$ the coefficient of x^2 is :

A. 1

B. -1

C. 2

D. -2.

Answer:

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194. In $\frac{\pi x^2}{2} + x$ the coefficient of x^2 is :

A. 1

B. $\frac{\pi}{2}$

C. $-\frac{\pi}{2}$

D. -1.

Answer:

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195. In $\sqrt{2}x - 1$ the coefficient of x is :

A. $\sqrt{2}$

B. -1

C. 1

D. $-\sqrt{2}$.

Answer:

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196. In $\sqrt{5}x - 1$ the coefficient of x is :

A. $\sqrt{5}$

B. -1

C. 0

D. $-\sqrt{5}$.

Answer:

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197. The degree of $5x^3 + 4x^3 + 7x$ is :

A. 1

B. 2

C. 3

D. 4

Answer:

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198. The degree of $4 - y^2$ is :

A. 1

B. 2

C. 0

D. 3

Answer:

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199. The degree of $5t - \sqrt{7}$ is :

A. 1

B. $\sqrt{7}$

C. 5

D. $-1.$

Answer:

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200. The degree of 3 is :

A. 0

B. 3

C. 1

D. -1.

Answer:

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201. Which one of the following is a linear polynomial :

A. $1+x$

B. x^2+x

C. $x + x^2 + 4$

D. $7x^3$.

Answer:

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202. Which one of the following is quadratic polynomial :

A. $x + x^3 + 4$

B. $5x^2$

C. $x - x^3$

D. $3x$.

Answer:

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203. The value of $p(x) = 5x - 4x^2 + 3$ for $x = 1$ is :

A. 5

B. 1

C. 4

D. 2

Answer:

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204. The value of $p(x) = 5x - 4x^2 + 3$ for $x = 0$ is :

A. 3

B. 2

C. -3

D. -2.

Answer:

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205. The value of $p(x) = 5x - 4x^2 + 3$ for $x = -1$ is :

A. 6

B. -6

C. 3

D. -3.

Answer:

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206. The value of $p(x) = 5x - 4x^2 + 3$ for $x = 2$ is :

A. 3

B. 2

C. -2

D. -3.

Answer:

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207. The value of $p(t) = 2 + t + 2t^2 - t^3$ for $p(0)$ is :

A. 1

B. 2

C. -1

D. 3

Answer:

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208. The value of $p(x) = (x-1)(x+1)$ for $p(1)$ is :

A. 1

B. 2

C. 0

D. -2.

Answer:

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209. The value of $p(t) = 2 + t + 2t^2 - t^3$ for $p(2)$ is :

A. 4

B. -4

C. 6

D. 7

Answer:

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210. The value of $p(y) = y^2 - y + 1$ for $p(0)$ is :

A. -1

B. 3

C. 1

D. -2.

Answer:

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211. The value of $p(x) = 3 + x$ for $p(2)$ is :

A. 0

B. 5

C. -5

D. 3

Answer:

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212. Which one of the following is the zero of $p(x) = 3x + 1$ on dividing :

A. $\frac{1}{3}$

B. $-\frac{1}{3}$

C. $\frac{2}{3}$

D. $-\frac{2}{3}$.

Answer:

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213. Which are the zeros of $p(x) = x^2 - 1$:

A. $1, -1$

B. $-1, 2$

C. $-2, 2$

D. $-3, 3.$

Answer:

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214. Which are the zeros of $p(x) = (x-1)(x-2)$:

A. $-2, 3$

B. $2, -2$

C. $1, 2$

D. $3, -3.$

Answer:

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215. Which one of the following is the zero of $p(x) = lx + m$:

A. $\frac{m}{l}$

B. $\frac{-l}{m}$

C. $\frac{-m}{l}$

D. $\frac{l}{m}.$

Answer:

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216. Which one of the following is the zero of $p(X) = 5x - \pi$:

A. $-\frac{4}{5}\pi$

B. $\frac{1}{5}\pi$

C. $\frac{4}{5}\pi$

D. $-\frac{5}{4}\pi$.

Answer:

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217. The zero of $p(x) = 2x - 7$ is :

A. $\frac{2}{7}$

B. $\frac{7}{2}$

C. $-\frac{2}{7}$

D. $-\frac{7}{2}$.

Answer:

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218. The zero of $p(x) = 9x + 4$ is :

A. $\frac{4}{9}$

B. $\frac{9}{4}$

C. $-\frac{9}{4}$

D. $-\frac{4}{9}$.

Answer:

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219. On dividing $x^3 + 3x^2 + 3x + 1$ by $x + 1$ we get remainder :

A. 1

B. $3x - 1$

C. 0

D. -1.

Answer:

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220. On dividing $x^3 + 3x^2 + 3x + 1$ by $x - \frac{1}{2}$ we get remainder :

A. $\frac{8}{27}$

B. $\frac{27}{8}$

C. $-\frac{8}{27}$

D. $-\frac{27}{8}$.

Answer:

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221. On dividing $x^3 + 3x^2 + 3x + 1$ by x we get remainder :

A. 1

B. 0

C. -1

D. 2

Answer:

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222. On dividing $x^3 + 3x^2 + 3x + 1$ by $x + \pi$ we get remainder :

A. $-\pi + 3\pi^2 - 3\pi + 1$

B. $\pi - 3\pi^2 + 3\pi + 1$

C. $-\pi - 3\pi^2 - 3\pi - 1$

D. $-\pi + 3\pi^2 - 3\pi - 1$.

Answer:

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223. On dividing $x^3 + 3x^2 + 3x + 1$ by $5 + 2x$ we get remainder :

A. $\frac{8}{27}$

B. $-\frac{8}{27}$

C. $-\frac{27}{8}$

D. $\frac{27}{8}$.

Answer:

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224. On dividing $x^3 - ax^2 + 6x - a$ by $x - a$ we get remainder :

A. 2a

B. 3a

C. 5a

D. 6a.

Answer:

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225. If $x - 2$ is a factor of $x^2 - 3x + 5a$ then value of a is :

A. 1

B. -1

C. $\frac{2}{5}$

D. $-\frac{2}{5}$.

Answer:

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226. If $x-2$ is a factor of x^3-2ax^2+ax-1 then value of a is :

A. $\frac{7}{6}$

B. $-\frac{7}{6}$

C. $\frac{6}{7}$

D. $-\frac{6}{7}$.

Answer:

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227. If $x-2$ is a factor of x^3+2ax^2+ax-1 then value of a is :

A. $\frac{2}{3}$

B. $\frac{3}{5}$

C. $\frac{3}{2}$

D. $\frac{1}{2}$.

Answer:

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228. If $x + a$ is a factor of $x^3 + ax^2 - 2x + a + 4$ then value of a is :

A. $-\frac{4}{3}$

B. $\frac{4}{3}$

C. $\frac{3}{4}$

D. $-\frac{3}{4}$.

Answer:

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229. If $x + a$ is a factor of $x^4 + a^2x^2 + 3x - 6a$ then value of a is :

A. 1

B. -1

C. 2

D. 0

Answer:

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230. If $x - a$ is a factor of $x^6 - ax^5 + x^4 - ax^3 + 3x - a + 2$ then value of a is :

A. 1

B. 2

C. -1

D. -2.

Answer:

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231. If $x - a$ is a factor of x^5 - a^2x^3+ 2x + a + 1` then value of a is :

A. $\frac{1}{3}$

B. $-\frac{1}{3}$

C. $\frac{2}{3}$

D. $-\frac{2}{3}$.

Answer:

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232. The factors of $2y^3 - 5y^2 - 19y + 42$ are :

A. $(y-2)(y+3)(2y-y)$

B. $(y+2)(y+3)(2y+y)$

C. $(y+2)(y-3)(2y+y)$

D. $(y-2)(y-3)(2y-y)$.

Answer:

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233. For which of the following polynomials is x + 1 is a factor ?

A. x^3+x^2+x+1

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

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

D. $x^3-x^2-\left(2+\sqrt{2}\right)x+\sqrt{2}$.

Answer:

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234. If x - 1 is a factor of $x^2 + x + k$ then value of k is :

A. 1

B. -1

C. 2

D. $-2.$

Answer:

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235. If x - 1 is a factor of $2x^2 + kx + \sqrt{2}$ then value of k is :

A. $2 + \sqrt{2}$

B. $-\left(2 + \sqrt{2}\right)$

C. $1+\sqrt{2}$

D. $-\left(1+\sqrt{2}\right)$.

Answer:

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236. If x - 1 is afactor of $kx^2-\sqrt{2}x+1$ then value of k is :

A. $\sqrt{2}+1$

B. $-1+\sqrt{2}$

C. $\sqrt{2}-1$

D. $-\sqrt{2}-1$.

Answer:

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237. If x - 1 is a factor of $p(x) = kx^2 - 3x + k$ then value of k is :

A. $\frac{3}{2}$

B. $-\frac{2}{3}$

C. $\frac{1}{2}$

D. $-\frac{1}{2}$.

Answer:

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238. The factors of $12x^2 - 7x + 1$ are :

A. $(4x - 1)(3x - 1)$

B. $(4x + 1)(3x - 1)$

C. $(4x - 1)(3x + 1)$

D. $(3x + 1)(4x - 1)$.

Answer:

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239. The factors of $2x^2 - 7x + 3$ are :

A. $(x - 3)(2x - 1)$

B. $(x + 3)(2x + 1)$

C. $(x + 3)(2x - 1)$

D. $(x - 3)(2x + 1)$.

Answer:

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240. The factors of $6x^2 + 5x - 6$ are :

A. $(2x - 3)(3x - 2)$

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

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

D. $(2x-3)(3x-1)$.

Answer:

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241. The factors of $3x^2 - x - 4$ are :

A. $(3x-4)(x+1)$

B. $(3x+4)(x-1)$

C. $(3x-4)(x-1)$

D. $(3x+2)(x+1)$.

Answer:

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242. The factors of $x^3 - 2x^2 - x + 2$ are :

A. $(x+1)(x-1)(x-2)$

B. $(x+1)(x-1)(x+2)$

C. $(x-1)(x-2)(x+2)$

D. $(x+2)(x-1)(x+1)$.

Answer:

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243. The factors of $x^3 - 3x^2 - 9x - 5$ are :

A. $(x+1)(x-1)(x+5)$

B. $(x+1)(x+1)(x-5)$

C. $(x-1)(x-1)(x-5)$

D. $(x+1)(x+1)(x+5)$.

Answer:

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244. $(x+4)(x+10)$ in expanded form is :

A. $x^2+4x+10$

B. $x^2+10x+40$

C. $x^2+14x+40$

D. $x^2-14x+40$.

Answer:

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245. $(x+8)(x-10)$ in the expanded form is :

A. $x^2 - 8x - 80$

B. $x^2 - 2x - 80$

C. $x^2 + 2x + 80$

D. $x^2 - 2x + 80.$

Answer:

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246. $(3x + 4)(3x - 5)$ in expanded form is :

A. $9x^2 - 3x - 20$

B. $9x^2 - x - 20$

C. $9x^2 - 7x - 20$

D. $9x^2 - 4x - 40.$

Answer:

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247. $(3-2x)(3+2x)$ in the expanded form is :

A. $9-2x$

B. $9-4x^2$

C. $6-4x^2$

D. $3-4x^2$.

Answer:

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248. The value of 104 x 96 is :

A. 9984

B. 9624

C. 9980

D. 9986

Answer:

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249. The value of 95 x 96 is :

A. 9020

B. 9120

C. 9320

D. 9340

Answer:

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250. The factors of $9x^2 + 6xy + y^2$ are :

A. $(3x - y)^2$

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

C. $(2y - y)^2$

D. $(2x + y)^2$.

Answer:

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251. The factor form of $4y^2 - 4y + 1$ is :

A. $(2y + 1)^2$

B. $(4y - 1)^2$

C. $(2y - 1)^2$

D. $(2y - 2)^2$.

Answer:

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252. The factor form of $x^2 - \frac{y^2}{100}$ is :

A. $\left(x + \frac{y}{10}\right)\left(x + \frac{y}{10}\right)$

B. $\left(x + \frac{y}{10}\right)\left(x - \frac{y}{10}\right)$

C. $\left(x - \frac{y}{5}\right)\left(x - \frac{y}{5}\right)$

D. $\left(x + \frac{y}{5}\right)\left(x - \frac{y}{5}\right)$.

Answer:

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253. $(2x - y + z)^2$ in the expanded form is :

A. $4x^2 + y^2 + z^2 + 4xy - 4yz + 2zx$

B. $4x^2 + y^2 + z^2 - 4xy - 2yz + 4zx$

C. $4x^2 - y^2 - z^2 - 4xy + 4yz - 2zx$

D. $4x^2 + y^2 - z^2 + 4xy - 2yz + 2zx.$

Answer:

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254. The factors of $a^4 - b^4$ are :

A. $\left(a^2 + b^2\right)\left(a^2 + b^2\right)$

B. $\left(a^2 + b^2\right)(a + b)(a - b)$

C. $\left(a^2 - b^2\right)\left(a^2 - b^2\right)$

D. None.

Answer:

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255. Which of the following completely divides $8x^3 - 125y^3$ is :

A. $8x - 125y$

B. $2x - 5y$

C. $2x + 5y$

D. $8x + 125y.$

Answer:

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256. If $x - \frac{1}{x} = m$ then the value of $x^3 - \frac{1}{x^3}$ is :

A. m^2

B. $3m$

C. $m^2 + 3m$

D. $m^3 + 3m$.

Answer:

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257. If $p + \frac{1}{p} = 2$ then the value of $p^2 - \frac{1}{p^2}$ is :

A. 4

B. 2

C. -2

D. None.

Answer:

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