MATHS

BOOKS - NCERT EXEMPLAR

ALGEBRAIC EXPRESSIONS, IDENTITIES AND FACTORISATION

Solved Examples

1. Which is the like term as $24a^2bc$?

A. $13 \times 8a \times 2b \times c \times a$

B. $8 \times 3 \times a \times b \times c$

C. $3 \times 8 \times a \times b \times c \times c$

D. $8 \times 8 \times a \times b \times c$

Answer: A

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2. Which of the following is an identitiy ?

A. $(p+q)^2 = p^2 + q^2$

B. $p^2 - q^2 = (p-q)^2$

C. $p^2 - q^2 = p^2 + 2pq = q^2$

D. $(p+q)^2 = p^2 + 2pq + q^2$

Answer: D

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3. The treducible factorisation of $3a^3 + 6a$ is

A. $3a\left(a^2+2\right)$

B. $3\left(a^2+2\right)$

C. $a\left(3a^2+6\right)$

D. $3\times a\times a\times a+2\times 3\times a$

Answer: A

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4. $a(b+c)=ab+ac$ is

A. commutative property

B. distributive property

C. associative property

D. closure property

Answer: B

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5. The representation of an expression as the product of its factors is called _____.

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6. (x + a) (x + b) = x^2 + (a + b)x + _____.

A. ab^2

B. a^2b

C. ab

D. a^2b^2

Answer: C

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7. IDENTITY An identity is an which is true for all values of the variables).

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8. state true or false Common factor of x^2y and – xy^2 is xy.

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9. state true or false $\left(3x + 3x^2\right) \div 3x = 3x^2$

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10. Simplify

(i) $-pqr\left(p^2 + q^2 + r^2\right)$

(ii) $(pz + qy)(ax - by)$

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11. Find the expansion of the using suitable identity.

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

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12. Find the expansion of the using suitable identity.

$\left(\frac{4x}{5} + \frac{y}{4}\right)\left(\frac{4x}{5} + \frac{3y}{4}\right)$

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13. Fractorise the following

$21x^3y^3 + 27x^3y^3$

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14. Fractorise the

$a^3 - 4a^2 + 12 - 3a$

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15. Fractorise the

$4x^2 - 20x + 25$

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16. Fractorise the

$\frac{y^2}{9} - 9$

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17. Evaluate using suitable identitiie.

$(48)^2$

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18. Evaluate using suitable identitiie.

$181^2 - 19^2$

Watch Video Solution

19. Evaluate using suitable identitiie.

497×505

Watch Video Solution

20. Evaluate using suitable identitiie.

2.07×1.93

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21. Verify that

$(3x + 5y)^2 - 30xy = 9x^2 + 25y^2$

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22. Verify that $(11pq + 4q)^2 - (11pq - 4q)^2 = 17pq^2$

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23. The area of a reactangle is $x^2 + 12xy + 27y^2$ and its length is ($x + 9y$). Find the breadth of the reactangle.

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24. Divide $15(y+3)\left(y^2-16\right) by 6\left(y^2-y-12\right)$. s

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25. By using sultable identity, evaluate $x^2+\frac{1}{x^2}$. If $x+\frac{1}{x}=5$.

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26. Find the value of $\frac{38^2-22^2}{16}$. using suttable identity.

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27. Find the value of x, if

$10000x=(9982)^2-(18)^2$

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Think And Discuss

1. Can you find the reciprocal of $\frac{2}{11} \times \frac{5}{55}$?

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2. Compare the ratios: $5:12 \; and \; 3:8$

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Exercise

1. The product of a monomial and a binomial is a

A. monomial

B. binomial

C. trinomial

D. none of these

Answer: B

2. In a polynomial, the exponents of the variables are always

A. integers

B. positive integers

C. non-negative integers

D. non-positive integers

Answer: C

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3. Which of the following is correct ?

A. $(a-b)^2 = a^2 + 2ab - b^2$

B. $(a-b)^2 = a^2 - 2ab + b^2$

C. $(a-b)^2 = a^2 - b^2$

D. $(a+b)^2 = a^2 + 2ab - b^2$

Answer: B

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4. The sum of $-7pq$ and 2pq is

A. $-9pq$

B. $9pq$

C. $5pq$

D. $-5pq$

Answer: D

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5. If we subtract $-3x^2y^2$ from x^2y^2. then we get

A. $-4x^2y^2$

B. $-2x^2y^2$

C. $2x^2y^2$

D. $4x^2y^2$

Answer:

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6. Let term as $4m^3n^2$ is

A. $4m^2n^2$

B. $-6m^3n^2$

C. $6 \pm^3 n^2$

D. $4m^3n$

Answer:

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7. Which of the following is a binomial ?

A. $7 \times a + a$

B. $6a^2 + 7b + 2c$

C. $4a \times 3b \times 2c$

D. $6\left(a^2 + b\right)$

Answer: D

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8. Sum of a – b + ab, b + c – bc and c – a – ac is

A. $2c + ab - ac - bc$

B. $2c - ab - ac - bc$

C. $2c + ab + ac + bc$

D. $2c - ab + ac + bc$

Answer: A

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9. Product of the following monomials $4p, 7q^3, -7pq$ is

A. $196p^2q^4$

B. $196pq^4$

C. $-196p^2q^4$

D. $196p^2q^3$

Answer: C

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10. Area of a rectangle with length 4ab and breadth $6b^2$ is

A. $24a^2b^2$

B. $24ab^3$

C. $24ab^2$

D. $24ab$

Answer:

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11. Volume of a rectangular box (cuboid) with length = 2ab, breadth = 3ac and height = 2ac is

A. $12a^3bc^2$

B. $12a^2bc$

C. $12a^2bc$

D. $2ab + 3ac + 2ac$

Answer:

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12. Product of $6a^2 - 7b + 5ab$ and 2ab is

A. $12a^2b - 14ab^2 + 10ab$

B. $12a^3b - 14ab^2 + 10a^2b^2$

C. $6a^2 - 7b + 7ab$

D. $12a^2b - 7ab^2 + 10ab$

Answer: B

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13. Square of 3x – 4y is

A. $9x^2 - 16y^2$

B. $6x^2 - 8y^2$

C. $9x^2 + 16y^2 + 24xy$

D. $9x^2 + 16y^2 - 24xy$

Answer: D

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14. Which of the following are like terms?

A. $5xyz^2, \ -3xy^3z$

B. $-5xyz^2, 7xyz^2$

C. $5xyz^2, 5x^2yz$

D. $5xyz^3, x^2y^2z^2$

Answer: B

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15. Coefficient of y in the term $\frac{-y}{3}$ is

A. -1

B. -3

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

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

Answer: C

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16. $a^2 - b^2$ is equal to

A. $(a-b)^2$

B. $(a-b)(a-b)$

C. $(a+b)(a-b)$

D. $(a+b)(a+b)$

Answer: C

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17. Common factor of $17abc$, $34ab^2$, $51a^2b$ is

A. $17abc$

B. $17ab$

C. $17ac$

D. $17a^2b^2c$

Answer: B

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18. Square of $9x - 7xy$ is

A. $81x^2 + 49x^2y^2$

B. $81x^2 - 49x^2y^2$

C. $81x^2 + 49x^2y^2 - 126x^2y$

D. $81x^2 + 49x^2y^2 - 63x^2y$

Answer: C

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19. Factorised form of $23xy - 46x + 54y - 108$ is

A. $(23x + 54)(y - 2)$

B. $(23x + 54y)(y - 2)$

C. $(23xy + 54y)(- 46x - 108)$

D. $(23x + 54)(y + 2)$

Answer: A

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20. Factortsed form of $r^2 - 10r + 21$ is

A. $(r-1)(r-4)$

B. $(r-7)(r-3)$

C. $(r-7)(r+3)$

D. $(r+7)(r+3)$

Answer: B

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21. Factortsed form of $p^2 - 17p - 38$ is

A. $(p-19)(p+2)$

B. $(p-19)(p-2)$

C. $(p+19)(p+2)$

D. $(p+19)(p-2)$

Answer: A

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22. On dividing $57p^2qr$ by 114 pq. We get

A. $\frac{1}{4}pr$

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

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

D. $2pr$

Answer: C

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23. On dividing $p\left(4p^2 - 16\right)$ by $4p(p-2),$ we get

A. $2p + 4$

B. $2p - 4$

C. $p + 2$

D. $p - 2$

Answer: C

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24. The common factor of 2 ab and 2cd is

A. 1

B. -1

C. a

D. 2

Answer:

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25. An irreducible factor of $24x^2y^2$ is

A. x^2

B. y^2

C. x

D. $24x$

Answer:

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26. Number of factors of $(a+b)^2$ is

A. 4

B. 3

C. 2

D. 1

Answer: C

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27. The factorised form of $3x-24$ is

A. $3x \times 24$

B. $3(x-8)$

C. $24(x-3)$

D. $3(x - 12)$

Answer:

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28. The factor of $x^2 - 4$ are

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

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

C. $(x + 2), (x + 2)$

D. $(x - 4), (x - 4)$

Answer: B

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29. The value of $(-27x^2y) \div (-9xy)$ is

A. $3xy$

B. $-3xy$

C. $-3x$

D. $3x$

Answer: D

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30. The value of $(2x^2 + 4) \div 2$ is

A. $2x^2 + 2$

B. $x^2 + 2$

C. $x^2 + 4$

D. $2x^2 + 4$

Answer: B

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31. The value of $\left(3x^3 + 9x^2 + 27x\right) \div 3x$ is

A. $x^2 + 9 + 27x$

B. $3x^3 + 3x^2 + 27x$

C. $3x^3 + 9x^2 + 9$

D. $x^2 + 3x + 9$

Answer: D

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32. The value of $(a+b)^2+(a-b)^2$ is

A. $2a+2b$

B. $2a-2b$

C. $2a^2+2b^2$

D. $2a^2-2b^2$

Answer: C

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33. The value of $(a+b)^2-(a-b)^2$ is

A. $4ab$

B. $-4ab$

C. $2a^2+2b^2$

D. $2a^2 - 2b^2$

Answer:

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34. fill in the blank to make the statement true:

The product of two terms with like signs is a..... term.

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35. The product of two terms with unlike signs is a term.

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36. $a(b + c) = a \times \_\_\_\_ + a \times \_\_\_\_$.

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37. $(a-b)$_____ $= a^2 - 2ab + b^2$

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38. $a^2 - b^2 = (a+b)$_____.

Watch Video Solution

39. $(a-b)^2 +$ _____ = $\left(a^2 - b^2\right)$

Watch Video Solution

40. $(a+b)^2 - 2ab =$ _____.

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41. $(x + a)(x + b) = x^2 + (a + b)x +$ _____.

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42. The product of two polynomials is a _____.

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43. Common factor of $ax^2 + bxis$_____.

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44. Factorised form of 18mn + 10mnp is _____.

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45. Factorised form of $4y^2$ - 12y + 9 is _____.

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46. $38x^2y^2z \div 19xy^2$ is equal to _____.

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47. Volume of a rectangular box with length 2x, breadth 3y and height 4z is _____.

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48. $67^2 - 37^2 = (67 - 37) \times$ _____ = _____.

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49. $103^2 - 102^2 =$ _____ $\times (103 - 102) =$ _____.

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50. Area of a rectangular plot with sides $4x^2$ and $3y^2 is$_____.

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51. Volume of a rectangular box with l = b = h = 2x is _____.

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52. The coefficient in – 37abc is _____.

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53. Number of terms in the expression $a^2 + bx \times dis$_____.

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54. The sum of areas of two squares with sides 4a and 4b is _____.

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55. The common factor method of factorisation for a polynomial is based on _____ property.

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56. The side of the square of area $9y^2 is$_____.

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57. On simplificaiton $\frac{3x+3}{3} =$ _____.

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58. The factorlsation of $2x + 4yis$_____.

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59. $(a+b)^2 = a^2 + b^2$

A. no

B. yes

C. cannot sure

D. none of the above

Answer: A

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60. $\frac{(a-b)^2}{a^2-b^2}$ = ?

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61. $(a+b)(a-b) = a^2 - b^2$

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62. State true/False

The product of two negative terms is a negative term.

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63. Which of the following statement are true? The product of a positive and negative integer is negative. The product of three negative integers is a negative integer. Of the two integers, if one is negative, then their product must be positive. For all non-zero integers $a\ and\ b,\ a \times b$ is always greater than either $a\ \text{or}\ b$. The product of a negative and a positive integer may be zero. There does not exist an integer b such that for $a > 1,\ a \times b = b \times a = b$.

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64. The coefficient of the term $-6x^2y^2 is\ -6$.

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65. State True or False:

$p^2q + q^2r + r^2q$ is a binomial.

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66. The factors of $a^2 - 2ab + b^2$ are $(a + b)$ and $(a + b)$. True or false.

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67. h is factor of $2\pi(h + r)$. True or false.

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68. Some of the factors of $\frac{n^2}{2} + \frac{n}{2}$ are $\frac{1}{2}, n$ and $(n + 1)$. True or false.

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69. An equation is true for all values of its variables

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70. $x^2 - (a+b)x + ab$

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71. Common factor of $11pq^2$; $121p^2q^3$ and $1331p^2q$

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72. Common factor of $12a^2b^2 + 4ab^2 - 32is$.

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73. Factorisation of $-3a^2 + 3ab + 3ac$ is

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74. Factorised form of $p^2 + 30p + 216$ is

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75. The difference of the squares of two consecutive numbers is their sum.

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76. $abc + bca + cab$ is a monomial.

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77. State True or False:

On dividing $\frac{p}{2}$ by $\frac{3}{p}$, the quotient is 9.

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78. The value of p for $51^2 - 49^2 = 100p$ is

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79. $(9x - 51) \div 9is$

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80. The value of $(a + 1)(a - 1)is$

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81. Add :

$7a^2bc - abc^2, 3a^2bc, 2abc^2$

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82. Add :

$9ax, \ +3by-cz, \ -5by+ax+3cz$

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83. Add :

$xy^2z^2+3x^2y^2z-4x^2yz^2, \ -9x^2y^2z+3xy^2z^2+x^2yz^2$

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84. Add :

$5x^2-3xy+4y^2-9, 7y^2+5xy-2x^2+13$

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85. Add :

$2p^4 - 3p^3 + p^2 - 5p + 7, \ -3p^4 - 7p^3 - 3p^2 - p - 12$

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86. Add :

$4a(a - b + c), 2b(a - b + c)$

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87. Add :

$3a(2b + 5c), 3c(2a + 2b)$

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88. Subtract :

$5a^2b^2c^2$ from $-7a^2b^2c^2$

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89. Subtract :

$6x^2 - 4xy + 5y^2$ from $8y^2 + 6xy - 3x^2$

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90. Subtract :

$2ab^2c^2 + 4a^2b^2c - 5a^2b^2$ from $-10a^2b^2c^2 + 4ab^2c^2 + 2a^2bc^2$

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91. Subtract :

$3t^4 - 4t^3 + 2t^2 - 6t + 6$ from $-4t^4 + 8t^3 - 4t^2 - 2t + 11$

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92. Subtract :

$2ab + 5bc - 7ac$ from $5ab - 2bc - 2ac + 10abc$

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93. Subtract :

$7p(31 + 7p)$ from $8p(2p - 71)$

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94. Subtract :

$-3p^2 + 3pq + 3px$ from $3p(-p - a - r)$

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95. Multiply the

$-7pq^2r^3, 12p^2q^2r$

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96. Multiply the

$3x^2y^2z^2, 17xyz$

Watch Video Solution

97. Multiply the

$15xy^2, 17yz^2$

Watch Video Solution

98. Multiply the

$-5a^2bc, 11ab, 13abc^2$

Watch Video Solution

99. Multiply the

$-3x^2y, (5y - xy)$

Watch Video Solution

100. Multiply the

$abc, (bc + ca)$

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101. Multiply the

$7pqr, (p - q + r)$

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102. Multiply the

$x^2y^2z^2, (xy - yz + zx)$

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103. Multiply the

$(p+6)$, $(q-7)$

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104. Multiply the

$6mn, 0mn$

Watch Video Solution

105. Multiply the

$a - a^5, a^6$

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106. Multiply the

$-7st, \ -1-13st^2$

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107. Multiply the

$b^3, 3b^2, 7ab^5$

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108. Multiply the

$-\frac{100}{9}rs, \frac{3}{4}r^3s^2$

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109. Multiply the

$(a^2 - b^2).(a^2 + b^2)$

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110. Multiply the

$(ab + c), (ab + c)$

Watch Video Solution

111. Multiply the

$(pq - 2r), (pq - 2r)$

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112. Multiply the following

$$\left(\frac{3}{4}x - \frac{4}{3}y\right), \left(\frac{2}{3}x + \frac{3}{2}y\right)$$

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113. Multiply the

$$\frac{3}{2}p^2 + \frac{2}{3}q^2, \left(2p^2 - 3q^2\right)$$

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114. Multiply the

$$\left(x^2 - 5x + 6\right), (2x + 7)$$

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115. Multiply the

$$\left(3x^2+4x-8\right).\left(2x^2-4x+3\right)$$

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116. Multiply the

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

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117. Simplify

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

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118. Simplify

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

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119. Simplify

$$\left(\frac{7}{9}a - \frac{4}{3}b\right)^2 - ab$$

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120. Simplify

$$\left(\frac{3}{4}x - \frac{4}{3}y\right)^2 + 2xy$$

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121. Simplify

$(1.5p + 1.2q)^2 - (1.5p - 1.2q)^2$

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122. Simplify

$(2.5m + 1.5q)^2 + (2.5m - 1.5q)^2$

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123. Simplify

$(x^2 - 4) + (x^2 + 4) + 16$

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124. Simplify

$(ab - c)^2 + 2abc$

Watch Video Solution

125. Simplify

$(a - b)(a^2 + b^2 + ab) - (a + b)(a^2 + b^2 - ab)$

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126. Simplify

$(b^2 - 49)(b + 7) + 343$

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127. Simplify

$(4.5a + 1.5b)^2 + (4.\ 5b + 1.\ 5a)^2$

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128. Simplify

$(pq - qr)^2 + 4pq^2r$

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129. Simplify

$\left(s^2t + tq^2\right)^2 - (2stq)^2$

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130. Expand the using suitable identity.

$(xy + yz)^2$

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131. Expand the using suitable identity.

$\left(x^2y - xy^2\right)^2$

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132. Expand the using suitable identity.

$\left(\frac{4}{5}a + \frac{5}{4}b\right)^2$

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133. Expand using suitable identity:

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

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134. Expand using suitable identity:

$$\left(\frac{4}{5}p + \frac{5}{3}q\right)^2$$

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135. Expand using suitable identity:

$$(x + 3)(x + 7)$$

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136. Expand using suitable identity:

$(2x + 9)(2x - 7)$

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137. Find the product of the following binomials; $\left(a^2 + bc\right)\left(a^2 - bc\right)$

(ii) $\left(\frac{4x}{5} - \frac{3y}{4}\right)\left(\frac{4x}{5} + \frac{3y}{4}\right)$

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138. Expand the using suitable identity.

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

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139. Expand the using suitable identitie.

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

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140. Expand the using suitable identitie.

$\left(\frac{2a}{3} + \frac{b}{3}\right)\left(\frac{2a}{3} - \frac{b}{3}\right)$

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141. Expand the using suitable identitie.

$\left(x^2 + y^2\right)\left(x^2 - y^2\right)$

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142. Expand the using suitable identitie.

$(a^2 + b^2)^2$

Watch Video Solution

143. Expand the using suitable identity.

$(7x + 5)^2$

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144. Expand the using suitable identity.

$(0.9p - 0.5q)^2$

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145. Expand the using suitable identity

$x^2y^2 = (xy)^2$

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146. Using suitable identity evaluate the

$(52)^2$

Watch Video Solution

147. Using suitable identity evaluate the

$(49)^2$

Watch Video Solution

148. Using suitable identity evaluate the

$(103)^2$

Watch Video Solution

149. Using suitable identity evaluate the

$(98)^2$

Watch Video Solution

150. Using suitable identie evaluate the

$(1005)^2$

Watch Video Solution

151. Using suitable identie evaluate the

$(995)^2$

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152. Using suitable identity evaluate the

47×53

A. 2490

B. 2491

C. 2492

D. 2493

Answer: B

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153. Using suitable identity evaluate the following

52×53

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154. Using suitable identity evaluate the

105×95

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155. Using suitable identie evaluate the

103×97

Watch Video Solution

156. Using suitable identity, evaluate the

101×103

Watch Video Solution

157. Using suitable identity evaluate the

98×103

Watch Video Solution

158. Using suitable identity evaluate the

$(9.9)^2$

Watch Video Solution

159. Using suitable identity evaluate the

9.8×10.2

Watch Video Solution

160. Using suitable identity evaluate the

10.1×10.2

Watch Video Solution

161. Using suitable identity evaluate the

$(35.4)^2 - (14.6)^2$

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162. Using suitable identity evaluate the

$(69.3)^2 - (30.7)^2$

Watch Video Solution

163. Using suitable identity evaluate the

$(9.7)^2 - (0.3)^2$

Watch Video Solution

164. Using suitable identity evaluate the

$(132)^2 - (68)^2$

Watch Video Solution

165. Using suitable identity evaluate the

$(339)^2 - (161)^2$

Watch Video Solution

166. Using suitable identity evaluate the

$(729)^2 - (271)^2$

A. 456000

B. 468000

C. 485000

D. 458000

Answer: D

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167. Write the greatest common factor in each of the term.

$-18a^2, 108a$

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168. Write the greatest common factor in each of the term.

$3x^2y, 18xy, -6xy$

A. $3x^2y$

B. $-3xy$

C. $3xy$

D. $6xy$

Answer: C

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169. Write the greatest common factor in each of the term.

$2xy, y^2, 2x^2y$

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170. Write the greatest common factor in each of the term.

$l^2m^2n, lm^2n^2, l^2mn^2$

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171. Write the greatest common factor in each of the term.

$21pqr, \ -7p^2q^2r^2, 49pqr$

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172. Write the greatest common factor in each of the term.

$qrxy, pryz, rxyz$

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173. Write the greatest common factor in each of the term.

$3x^2y^3z, \ -6xy^3z^2, 12x^2yz^3$

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174. Write the greatest common factor in each of the term.

$63p^2a^2r^2s, \ -9pq^2r^2s^2, \ -60p^2a^2rs^2$

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175. Write the greatest common factor in each of the term.

$13x^2y, 169xy$

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176. Write the greatest common factor in each of the term.

$11x^2, 12y^2$

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177. Factoris the expression.

$6ab + 12bc$

Watch Video Solution

178. Factoris the expression.

$-xy - ay$

Watch Video Solution

179. Factoris the expression.

$ax^3 - bx^2 + cx$

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180. Factoris the expression.

$l^2m^2n - lm^2n^2 - l^2mn^2$

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181. Factoris the expression.

$3pqr - 6p^2q^2r^2 - 15r^2$

Watch Video Solution

182. Factoris the expression.

$x^2y^2 + x^2y^3 - xy^4 + xy$

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183. Factoris the expression.

$4ab^2 - 3a^2b + 5ab^2 - ab$

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184. Factoris the expression.

$2a^3 - 3a^2b + 5ab^2 - ab$

Watch Video Solution

185. Factoris the expression.

$63p^2q^2r^2s - 9pq^2r^2s^2 + 15p^2qr^2s^2 - 60p^2q^2rs^2$

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186. Factoris the expression.

$24x^2yz^3 - 6xy^3z^2 + 15x^2y^2z - 5xyz$

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187. Factoris the expression.

$a^3 + a^2 + a + 1$

Watch Video Solution

188. Factoris the expression.

$lx + my + mx + ly$

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189. Factoris the expression.

$a^3x - x^4 + a^2x^2 - ax^3$

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190. Factoris the expression.

$2x^2 - 2y + 4xy - x$

Watch Video Solution

191. Factoris the expression.

$y^2 + 8zx - 2xy - 4yz$

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192. Factorise the expression.

$ax^2y - bxyz - ax^2z + bxy^2$

Watch Video Solution

193. Factorise the expression.

$a^2b + a^2c + ab + ac + b^2c + c^2b$

Watch Video Solution

194. Factoris the expression.

$2ax^2 + 4axy + 3bx^2 + 2ay^2 + 6bxy + 3by^2$

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195. Factorise the expression using the identity

$a^2 + 2ab + b^2 = (a + b)^2$

$x^2 + 6x + 9$

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196. Factorise the expression using the identity

$a^2 + 2ab + b^2 = (a + b)^2$

$x^2 + 12x + 36$

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197. Factorise the expression using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$x^2 + 14x + 49$

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198. Factorise the expression using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$x^2 + 2x + 1$

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199. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$4x^2 + 4x + 1$

Watch Video Solution

200. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$a^2x^2 + 2ax + 1$

Watch Video Solution

201. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$a^2x^2 + 6ax + 9$

Watch Video Solution

202. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$a^2x^2 + 2abxy + b^2y^2$

Watch Video Solution

203. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$4x^2 + 12x + 9$

Watch Video Solution

204. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$16x^2 + 40x + 25$

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205. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$9x^2 + 24x + 16$

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206. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$9x^2 + 30x + 25$

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207. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$2x^3 + 24x^2 + 72x$

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208. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$a^2x^3 + 23abx^2 + b^2x$

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209. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$4x^4 + 12x^3 + 9x^2$

Watch Video Solution

210. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$\frac{x^2}{4} + 2x + 4$

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211. Factorise the using the identity $a^2 + 2ab + b^2 = (a + b)^2$

$9x^2 + 2xy + \frac{y^2}{9}$

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212. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$x^2 - 8x + 16$

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213. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$x^2 - 10x + 25$

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214. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$y^2 - 14y + 49$

Watch Video Solution

215. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$p^2 - 2p + 1$

Watch Video Solution

216. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$4a^2 - 4ab + b^2$

Watch Video Solution

217. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$p^2y^2 - 2py + 1$

Watch Video Solution

218. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$a^2y^2 - 2aby + b^2$

Watch Video Solution

219. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$9x^2 - 12x + 4$

Watch Video Solution

220. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$4y^2 - 12y + 9$

Watch Video Solution

221. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$$\frac{x^2}{4} - 2x + 4$$

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222. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

$$a^2y^3 - 2aby^2 + b^2y$$

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223. Factorise the using the identity $a^2 - 2ab + b^2 = (a - b)^2$.

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

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224. Factorise the

$x^2 + 15x + 26$

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225. Factorise the

$x^2 + 9x + 20$

Watch Video Solution

226. Factorise the

$x^2 + 18x + 65$

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227. Factorise the

$p^2 + 14p + 13$

Watch Video Solution

228. Factorise the

$y^2 + 4y - 21$

Watch Video Solution

229. Factorise the

$y^2 - 2y - 15$

Watch Video Solution

230. Factorise the

$18 + 11x + x^2$

Watch Video Solution

231. Factorise the

$x^2 - 10x + 21$

Watch Video Solution

232. Factorise the

$x^2 + 17x + 60$

Watch Video Solution

233. Factorise the

$x^2 + 4x - 77$

Watch Video Solution

234. Factorise the

$y^2 + 7y + 12$

Watch Video Solution

235. Factorise the

$p^2 - 13p - 30$

Watch Video Solution

236. Factorise the

$p^2 - 16p - 80$

Watch Video Solution

237. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$x^2 - 9$

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238. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$4x^2 - 25y^2$

Watch Video Solution

239. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$4x^2 - 49y^2$

Watch Video Solution

240. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$3a^2b^3 - 27a^4b$

Watch Video Solution

241. Factorise the expression using the identity $a^2 - b^2 = (a + b)(a - b)$.

$28ay^2 - 175ax^2$

Watch Video Solution

242. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$9x^2 - 1$

Watch Video Solution

243. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$25ax^2 - 25a$

Watch Video Solution

244. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

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

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245. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{2p^2}{25} - 32q^2$$

Watch Video Solution

246. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$49x^2 - 36y^2$$

Watch Video Solution

247. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$y^2 - \frac{y^2}{9}$$

Watch Video Solution

248. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{x^2}{25} - 625$$

Watch Video Solution

249. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{x^2}{8} - \frac{y^2}{18}$$

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250. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{4x^2}{9} - \frac{9y^2}{16}$$

Watch Video Solution

251. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{x^3y}{9} - \frac{xy^3}{16}$$

Watch Video Solution

252. Factorise the expression using the identity :

$a^2 - b^2 = (a + b)(a - b)$.

$1331x^2y - 11y^3x$

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253. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$\frac{1}{36}a^2b^2 - \frac{16}{49}b^2c^2$$

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254. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$a^4 - (a - b)^4$

Watch Video Solution

255. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$x^4 - 1$

Watch Video Solution

256. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$y^4 - 625$

Watch Video Solution

257. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$p^5 - 16p$

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258. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$16x^4 - 81$

Watch Video Solution

259. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$x^4 - y^4$

Watch Video Solution

260. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$y^4 - 81$

Watch Video Solution

261. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$16x^4 - 625y^4$

Watch Video Solution

262. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

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

Watch Video Solution

263. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

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

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264. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$x^4 - y^4 + x^2 - y^2$

Watch Video Solution

265. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$8a^3 - 2a$

Watch Video Solution

266. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

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

Watch Video Solution

267. Factorise the using the identity $a^2 - b^2 = (a + b)(a - b)$.

$$9x^2 - (3y + z)^2$$

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268. The expresson are the areas of reactangle. Find the possible lengths and breadths of these reactangle.

$$x^2 - 6x + 8$$

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269. The expresson are the areas of reactangle. Find the possible lengths and breadths of these reactangle.

$x^2 - 3x + 2$

Watch Video Solution

270. The expresson are the areas of reactangle. Find the possible lengths and breadths of these reactangle.

$x^2 - 7x + 10$

Watch Video Solution

271. The expresson are the areas of reactangle. Find the possible length and breadth of these reactangle.

$x^2 + 19x - 20$

Watch Video Solution

272. The expresson are the areas of reactangle. Find the possible lengths and breadths of these reactangle.

$x^2 + 9x + 20$

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273. Carry out the division :

$51x^3y^2z \div 17xyz$

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274. Carry out the division :

$76x^3yz^3 \div 19x^2y^2$

Watch Video Solution

275. Carry out the division :

$17ab^2c^3 \div \left(-abc^2\right)$

Watch Video Solution

276. Carry out the division :

$-121p^3q^3r^3 \div \left(-11xy^2z^3\right)$

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277. Perform the division:

$\left(3pqr - 6p^2q^2r^2\right) \div 3pq$

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278. Perform the division:

$(ax^3 - bx^2 + cx) \div (-dx)$

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279. Perform the division:

$(x^3y^3 + x^2y^3 - xy^4 + xy) \div xy$

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280. Perform the division:

$(-qrxy + pryz - rxyz) \div (-xyz)$

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281. Factorise the expressions and divide them as directed :

$\left(x^2 - 22x + 117\right) \div (x - 13)$

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282. Factorise the expressions and divide them as directed :

$\left(x^3 + x^2 - 132x\right) \div x(x - 11)$

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283. Factorise the expression and divide them as directed :

$\left(2x^3 - 12x^2 + 16x\right) \div (x - 2)(x - 4)$

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284. Factorise the expressions and divide them as directed :

$(9x^2 - 4) \div (3x + 2)$

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285. Factorise the expressions and divide them as directed :

$(3x^2 - 48) \div (x - 4)$

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286. Factorise the expressions and divide them as directed :

$(x^4 - 16) \div x^3 + 2x^2 + 4x + 8$

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287. Factorise the expressions and divide them as directed :

$(3x^4 - 1875) \div (3x^2 - 75)$

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288. The area of a square is given by $4x^2 + 12xy + 9y^2$. Find the side of the square.

A. $2x + 3y$

B. $2x - 3y$

C. $3x + 2y$

D. $2y - 3x$

Answer: A

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289. The area of a square is $9x^2 + 24xy + 16y^2$. Find the side of the square.

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290. The area of a rectangle is $x^2 + 7x + 12$. If its breadth is $(x + 3)$. then find its length.

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291. The curved surface area of a cylinder is $2\pi\left(y^2 - 7y + 12\right)$ and its radius is (y – 3). Find the height of the cylinder (C.S.A. of cylinder = $2\pi rh$).

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292. The area of a circle is given by the expression $\pi x^2 + 6\pi x + 9\pi$. Find the radius of the circle.

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293. The sum of first n natural numbers is given by the expression $\frac{n^2}{2} + \frac{n}{2}$. Factorise this expression.

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294. The sum of $(x + 5)$ observations is $x^4 - 625$. Find the mean of the observations.

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295. The height of a triangle is $x^4 + y^4$ and its base is 14xy. Find the area of the triangle.

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296. The cost of a chocolate is Rs $(x + y)$ and Rohit bought $(x + y)$ chocolates. Find the total amount paid by him in terms of x and y. If $x = 10, y = 5$, find the amount paid by him.

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297. The base of a parallelogram is $(2x + 3)$ units and the corresponding height is $(2x - 3)$ units. Find the area of the parallelogram in terms of x. What will be the area of parallelogram of $x = 30$ units?

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298. The radius of a circle is $7ab - 7bc - 14ac$. Find the circumference of the circle. $\left(\pi = \frac{22}{7}\right)$

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299. If $p + q = 12$ and $pq = 22$, then find $p^2 + q^2$.

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300. If $a + b = 25$ and $a^2 + b^2 = 225$ then find ab

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301. If $x - y = 13$ and $xy = 28$, then find $x^2 + y^2$.

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302. If $m - n = 16$ and $m^2 + n^2 = 400$, then find mn.

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303. If $a^2 + b^2 = 74$ and $ab = 35$, then find a + b.

A. 11

B. 12

C. 13

D. 14

Answer: B

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304. Verify that

$$(ab+bc)(ab-bc)+(bc+ca)(bc-ca)+(ca+ab)(ca-ab)=0$$

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305. Verify that

$$(a+b+c)\left(a^2+b^2+c^2-ab-bc-ca\right)=a^3+b^3+c^3-3abc$$

Watch Video Solution

306. Verify that

$$(p-q)\left(p^2+pq+q^2\right)=p^3-q^3$$

Watch Video Solution

307. Verify that

$(m+n)\left(m^2-mn+n^2\right)=m^3+n^3$

Watch Video Solution

308. Verify the

$(a+b)(a+b)(a+b)=a^3+3a^2b+3a^2b+3ab^2+b^3$

Watch Video Solution

309. Verify that

$(a-b)(a-b)(a-b)=a^3-3a^2b+3ab^2-b^3$

Watch Video Solution

310. Verify that

$$(a^2-b^2)(a^2+b^2)+(b^2-c^2)(b^2+c^2)+(c^2-a^2)+(c^2+a^2)=0$$

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311. Verify that

$$(5x+8)^2-160x=(5x-8)^2$$

Watch Video Solution

312. Verify the

$$(7p-13q)^2+364pq=(7p+13q)^2$$

Watch Video Solution

313. Verify that

$$\left(\frac{3p}{7}+\frac{7}{6p}\right)^2-\left(\frac{3p}{7}-\frac{7}{6p}\right)^2=2$$

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314. Find the value of a, if

$$8a=35^2-27^2$$

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315. Find the value of a, if

$$9a=76^2-67^2$$

Watch Video Solution

316. Find the value of a, if

$pqa = (3p + q)^2 - (3p - q)^2$

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317. Find the value of a, if

$pq^2a = (4pq + 3q)^2 - (4pq - 3q)^2$

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318. What should be added to $4c(-a + b + c)$ to obtain $3a(a + b + c) - 2b(a - b + c)$?

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319. Subtract $b\left(b^2+b-7\right)+5$ from $3b^2-8$ and find the value of expression obtained for $b=-3$.

Watch Video Solution

320. If $x-\frac{1}{x}=7$ then find value of $x^2+\frac{1}{x^2}$.

A. 49

B. 50

C. 51

D. 52

Answer: C

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321. Factorise $x^2 + \frac{1}{x^2} + 2 - 3x - \frac{3}{x}$.

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322. Factorise $p^4 + q^4 + p^2q^2$.

Watch Video Solution

323. Find the value of

$$\frac{6.25 \times 6.25 - 1.75 \times 1.75}{4.5}$$

A. 6

B. 7

C. 8

D. 9

Answer: C

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324. Simplify the following using the identities:

$$\frac{198\ x\ 198 - 102\ x\ 102}{96}$$

(ii) $1.73\ x\ 1.73 - 0.27\ x\ 0.27$

$$\frac{8.63\ x\ 8.63 - 1.37\ x\ 1.37}{0.726}$$

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325. The product of two expressions is $x^5 + x^3 + x$. If one of them is $x^2 + x + 1$. find the other.

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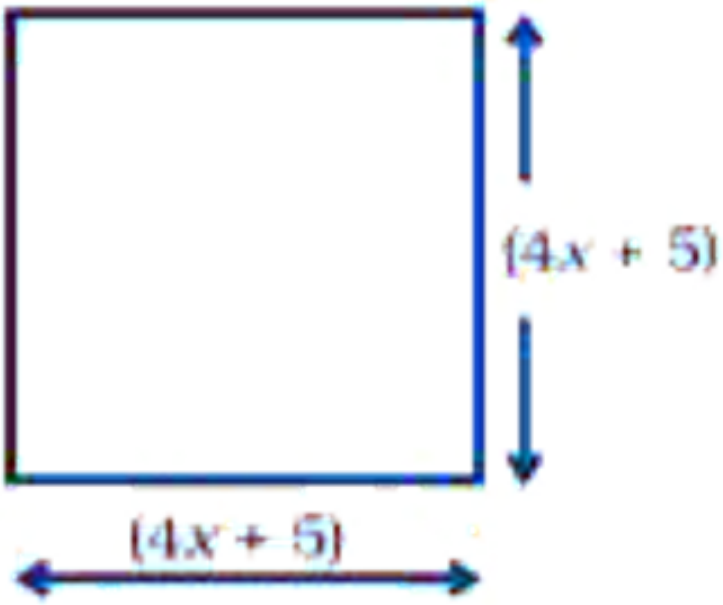
326. Find the length of the side of the given square if area of the square is 625 square units and then find the value of x.



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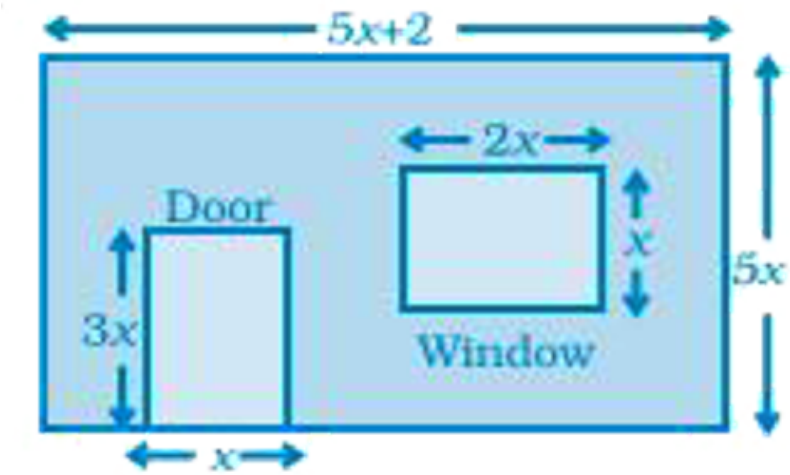
327. The figure shows the dimensions of a wall having a window and a door of a room. Write an algebraic expression for the area of the

wall to be painted.



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328. Match the expressions of column I with that of column II:

Column I	Column II
(1) $(21x + 13y)^2$	(a) $441x^2 - 169y^2$
(2) $(21x - 13y)^2$	(b) $441x^2 + 169y^2 + 546\,xy$
(3) $(21x - 13y)(21x + 13y)$	(c) $441x^2 + 169y^2 - 546xy$
	(d) $441x^2 - 169y^2 + 546xy$

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