





MATHS

BOOKS - JNAN PUBLICATION

ALGEBRIC OPERATIONS



1. Lets wirte the Algebraic expression and find their number

of terms. 4x, 3x + 1, 2x + 1, 6p - 1, 3y +6

2. Draw 'factor tree' type figures and from there find the number of terms and factors of the following algebraic expression: 2x+1.

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3. Draw 'factor tree' type figures and from there find the number of terms and factors of the following algebraic expression: 3y+6.

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4. From algebraic expressions from the statements given y is

added to x.



5. Let's form algebraic expresisons from the statement given

below:

x is subtracted from z.



6. Let's form algebraic expresisons from the statement given

below:

q is added to twice of P



7. Let's form algebraic expresisons from the statement given

below:

Multiply x with square of x

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8. Let's form algebraic expresisons from the statement given

below:

i) the $\frac{1}{4}th$ of the sum of x and y ii) 7 is added to 4 times the product of a & b



9. Let's form algebraic expresisons from the statement given

below:

(i) Half of y is added to twice of x (ii) Produt of x and y

subtructed from sum of x and y.

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10. Let's observe the patterns fo match sticks and fill in the schart given below.



11. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: 5x.

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12. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: $7 + 2x + x^2$.

13. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: $2y^3 + y$.

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14. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: $x^2y + xy^2 + xyz$.

15. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: $xy + 2x^2y^2$.

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16. Represent the following algebraic expressions into 'factor tree' type of figure mentioning the prime factors of each term. Also mention the types of these expressions with respect to their number of terms: 5x+2y.



17. Let's find the numerical co-efficcients of the terms, other

than constant term.

2x + 3y

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18. Let's find the numerical co-efficcients of the terms, other

than constant term.

$$x^2 + 2x + 5$$

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19. Let's find the numerical co-efficcients of the terms, other

than constant term.

$$x^2 + 5xy - 7y$$



20. Let's find the numerical co-efficcients of the terms, other

than constant term.

-5 - z



21. Let's find the numerical co-efficcients of the terms, other

than constant term.

$$x^3 + x - y$$

22. Let's find the numerical co-efficcients of the terms, other

than constant term.

 $\frac{x}{y} + 4$

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23. In the following algebraic expression let's find the coefficients of x in the terms or terms which has 'x' as their factor.

 $y^3x + y^2$



24. In the following algebraic expression find the coefficient of x in the terms or terms which has 'x' as their factor:



25. In the following algebraic expression find the coefficient

of x in the terms or terms which has 'x' as their factor: -x-y+2.



26. In the following algebraic expression find the coefficient

of x in the terms or terms which has 'x' as their factor: 4+y+yx.



27. In the following algebraic expression find the coefficient of x in the terms or terms which has 'x' as their factor: $2 + x + xy^2$.

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28. In the following algebraic expression find the coefficient of x in the terms or terms which has 'x' as their factor: $15xy^4-14.$

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29. Group the like terms from the algebraic expressions given: 2x, y, 12xy, $13y^2$, -5x, 18y, -4xy, $-2y^2$, $21x^2y$, 3x, 3xy, -xy, - $6x^2$, $-15x^2$.



30. Let's identify the like and dislike pairs of terms with reasons from the pairs of given below:-

2x, 2y



31. Identify the like and unlike pairs of terms with reasons

from the pairs of terms given: 7x, 8x,



32. Let's identify the like and dislike paris of terms with reasons from the pairs of given below:-

-29x, 6x

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33. Let's identify the like and unlike pairs of terms with

reasons from the pairs of given below:-

4xy, 6yz

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34. Let's identify the like and unlike pairs of terms with reasons from the pairs of given below:-

-15x, 8xy



35. Let's identify the like and unlike pair of terms with reasons from the pair of given below:-

 $5xy, 6x^2y^2$



36. From the algebraic expressions given, write the terms which contain x^2 . And also find the coefficient of x^2 : $5 - xy^2$



37. From the algebraic expressions given, write the terms which contain x^2 . And also find the coefficient of x^2 : $-6x^2 - 8y$

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38. From the algebraic expressions given, write the terms which contain x^2 . And also find the coefficient of x^2 : $3x^2 - 15xy^2 - 8y^2$

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39. Let's add the algebraic expressions $(2x^2 + x + 2)$ and $(x^2 + 2x + 2)$





41. Let's add the following :-

(-5x+3y) and (18x-15y)

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42. Let's add the following :-

$$(7a - 8b + 2c)$$
 and $(2a + 3b - d)$

43. Let 's subtract.

(-mn-m+n) from (4mn + m+n)`

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44. Let 's subtract.

 $(2q^2+3p^2-qp+pq^2)From(p^2+q^2-pq+p^2q).$



45. Let's calculate mentally :-

5x + 3x



46. Let's calculate mentally :-

9y - 3y



47. Let's calculate mentally :-

-4y + 7y



48. Let's calculate mentally :-

-10x - 2x

49. Let's calculate mentally :-

3a + 4a -2a



50. Let's calculate mentally :-

-7x -2x +5x

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51. Let's calculate mentally :-

6p - 2p + 3p

52. Calculate:
$$4x^2 - 2x^2 - 3x^2 + x^2$$



53. Let's calculate mentally :-

 $5a^2b - 2a^2b - 3a^2b + 8a^2b$

54. Calculate:
$$3x^2 - 6x^2 - 2x^2 - x^2 + 6x^2$$



55. My age is 'x' Pallabi is 2 years older than me. Let's find the

sum of our ages.



56. Today I made 'x' number of flower garlands. Mir made 6 more than twice the number of garlands I made. In total, how many garlands we two have made.



57. Today Ratul bought guava for x rupees, apple for (x+15) rupees and cucumber for (2x+3) rupee. Find, how much money did Ratul spent today on fruits.



58. Last year Firoza was present in school for x days. Firoza's friend Mohini was present for (3x+13) days. Findout last year how many days was Mohini present in school more than Firoz.



59. Today, Dipuda sold (2x+19) newspapers. But yesterday he sold (5x-8) newspapers. Find, how many newspapers did Dipuda sold today more than yesterday.

60. Paresh babu earns Rs. 8X per month. But the spends Rs. (3x - 15) per month. Let's find the amount of money he saves per month.

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61. Add: 3a+b, 2a+4b, 5a-b	
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62. Add: 5a-4, 2a+3, 2a-4

63. Let's add :

 $6a^2+7a+3,9a^2-2a+7,4a^2-2a+9$

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64. Let's add :

$$2a^2b+5b^2a+7, 3a^2b-2b^2a+6, 8a^2b-b^2a+9$$

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65. Let's add :

4xy + 5x + 7y, - 4xy - y - 3x, 3xy - 3y + 2x

66. Let's Substract:

(2x + 3y) from (8x + 6y)

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67. Let's Substract:

$$ig(m^2-2ig)Fromig(-3m^2+2m+2ig)$$

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68. Let's Substract:

`(8x + 4y + 7) from (2x + 3y)



69. Let's Substract:

$$ig(5a^2+2a-1ig)Fromig(-9a^2+3a+2ig)$$



70. Subtract: (
$$-2x^2+3y^2$$
) from x

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71. Let's Substract:

$$ig(2x^2+xy+3y^2ig)Fromig(3x^2+5xyig)$$

72. Simplify in following.

 $17x^{2}y - 3xy^{2} + 14x^{2}y + 2xy^{2}$



74. Simplify in following.

$$4m^2+3n^2-\left(6m^2+7n^2
ight)$$



78. Simplify the following: $(x^2 + 2x - 5) + (3x^2 - 8x + 5)$

79. Simplify the followin	g: ($7x^2 - 3x$	$+$ 3) - ($2x^2$ -	-13x - 7)
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81. Ramu had Rs. $(13x^2 - x - 3)$. He spent Rs.

 $ig(4x^2-3x-12ig)$. Let's find how much money Ramu has got.

82. The length of three sides of a triangle are (x +4) cm. (2x+1) cm. and (x-8) cm. Let's find the perimeter of the triangle.

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83. How much must be added to $-8x^2 + 8x + 1$ to get $-14x^2 + 11x - 3$.			
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84. Let's find , what must be subtracted from -11x - 7y - 9z to

get - 7x + 3y - 5z



85. How much is the sum of $(3x^2 + 4x)$ and $(5x^2 - x)$ more than $(3x - 5x^2)$, calculate.

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86. Subtract the sum ($x^2 - 9x$) and ($-2x^2 + 3x + 5$) from

the sum of (5+9x) and ($6 - 7x + 4x^2$).

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87. If x = 5. Let's find the values of the following algebric expression.

6x + 11

88. If x = 5. Let's find the values of the following algebric expression.

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

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89. If x = 5. Let's find the values of the following algebric

expression.

$$x^2 + 2x - 1$$

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90. If x = 5. Let's find the values of the following algebric expression.

 $x^{3} + 8$



91. If x = 5. Let's find the values of the following algebric expression.

10 - x



92. If y = -3, Let's find the values of the following algebraic

expressions.

$$\frac{y+5}{5}$$

93. If y = -3, Let's find the values of the following algebric expressions.

5 - y

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94. If y = -3, Let's find the values of the following algebric

expressions.

y + 8



95. If y = -3, Let's find the values of the following algebric expressions.

 $y^2 + 2y + 3$



96. If y = -3, Let's find the values of the following algebric expressions.

`y^3 - 1

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97. Let's find the values of the following x = 2, y = -1

2x + 7y



98. Let's find the values of the following x = 2, y = -1

 $x^2 + y^2$



$$x^3 - 8y^3$$

101. Let's find the values of the following x = 2, y = -1



-3x, 4x

104. Let's find the product of the following:-

$$-2x, -3x^2$$



105. Let's find the product of the following:-

7x, 0



106. Let's find the product of the following:-

3ab, 4ac

107. Let's find the product of the following:-

 $8x^2, 2y^2$



108. Let's find the product of the following:-

 $2a^2b, 3ab^2$



109. Let's find the product of the following:-

(-4xy), (-4xy)

110. Multiply first monomial with second monomial and write

the product in corresponding blanks spaces.





111. In each of the following cases, let's multiply and find their

product.

 $ab, \left(a^2 - b^2
ight)$

112. In each of the following cases, let's multiply and find their product.

4a, (a+b-c)

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113. In each of the following cases, let's multiply and find

their product.

 $6a^2b^2, (2a+b)$

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114. In each of the following cases, let's multiply and find their product.

 $xyz,\left(x^{2}y-y^{2}x+z^{2}y
ight)$

115. Simplify:
$$7x(2x+3) - 5x(3x-4)$$

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116. Simplify: x(x-y)+y(y-z)+z(z-x)

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117. Simplify: 2x - 6x(5 - 8x - 3y)





(11 + 2x) (8 - 2xy)



(a + by) (4a - 6y)

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122. Let's Multiply :

$$igg(rac{x}{y}-rac{y}{3}igg)igg(rac{2x}{3}igg)-rac{3y}{5}$$

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123. Let's Multiply:

$$\left(\frac{2a^2}{9}-\frac{1}{7}\right)\left(\frac{3a}{5}-\frac{2}{5}\right)$$

124. Let's find values of the following mentally:-

 $3a \times 4b = ?$



126. Let's find values of the following mentally:-

 $12ab \div ? = 4ab$

127. Let's find values of the following mentally:-

$$ig(-x^2ig) imes x=?$$

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128. Let's find values of the following mentally:-

 $9x^2 \div 3x^2 = ?$

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129. Let's find values of the following mentally:-

 $x^2 imes x^2 = \ ?$

130. Let's find values of the following mentally:-

$$x^2 \div ? = 1$$

131. Let's find values of the following mentally:-

 $0 \div ab =$

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132. Let's find values of the following mentally:-

 $4a^2b^2c^2 imes \, ? \, = 0$

$$2x^2 imes(\,-\,3y) imes 6z$$

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134. Let's multiply :-

$$7xy^2 imes 8x^2y imes xy$$

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135. Let's multiply :-

$$\left(\,-\,3a^2
ight) imes\left(4a^2b
ight) imes\left(\,-\,2
ight)$$

$$(-2mn) imes rac{1}{6}m^2n^2 imes 13m^4n^4$$



$${2\over 3}x^2y imes {3\over 5}xy^2$$



138. Let's multiply :-

$$\left(\,-\,{18\over 5}x^2
ight) imes \left(\,-\,{25\over 6} imes z^2y
ight)$$

$$\left(-rac{3}{5}s^2t
ight) imes \left(rac{15}{7}st^2u
ight) imes \left(rac{7}{9}su^2
ight)$$

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140. Let's multiply :-

$$\left(rac{4}{3}x^2zy
ight) imes \left(rac{1}{3}y^2zx
ight) imes (\,-\,6xyz)$$

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141. Let's multiply :-

4a (3a + 7b)`

 $8a^2(2a+5b)$



145. Multiply: $2 imes 5xig(10x^2y-100xy^2ig)$



147. Multiply:
$$ig(a^2-b^2ig)(2b-6a)$$

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148. Let's multiply :-

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

149. Seema Planted 3x saplings in a row. In 2x such row let's

find how many saplings seema can plant.



150. The length of a rectangle is (4x + 1)m and breadth is 3x

m. Let's calculate the area of the rectangle.



151. Presently, the price of a dozen of bananas has increased

by 6 rupees. If the previous price of a dozen of bananas was x

rupees, find the cost of 2x dozen of bananas.



152. Let's find the area of a square whole each side is 7x cm.

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153. The area of a rectangle is $8x^2sq$. <i>units</i> If the length ios	

4x units. Let's find its breadth.

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154. Sushobhan sold $729y^4$ number of kites in 9y days. Find

the number of kites sold in average per day.

155. Let's divide the first algebraic expression with the second algebraic expression in the folloiwng pairs of algebraic number.

 $8x^{3}b, x^{2}b$

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156. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of algebraic number.

 $-9xy^2, xy$

157. Let's divide the first algebraic expression with the second algebraic expression in the folloiwng pairs of algebraic number.

$$-15x^2y^4z^2,\ -x^2yz^2$$

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158. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of algebraic number.

 $21 l^3 m^3 n^3, \ -4 l^4 m n$



159. Let's divide the first algebraic expression with the second algebraic expression in the folloiwng pairs of algebraic number.

$$ig(5a^2-7ab^2ig),a$$

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160. Let's divide the first algebraic expression write the second algebraic expression in the following pairs of algebraic number.

$$ig(-48x^9+12x^6ig), 3x^3$$

161. Divide the first algebraic expression by the second algebraic expression in the pairs of algebraic numbers: $15m^2n + 20m^2n^2$, 5mn,

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162. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of algebraic number.

$$ig(36a^5b^2-24a^2b^5ig),ig(-4a^2b^2ig)$$

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163. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of

algebraic number.

$$3pqr + 6p^2qr^2 - 9p^3q^2r^3, - 3qpr.$$



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164. Simplify the a(b-c)+b(c-a)+c(a-b)
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165. Simplify the a(b-c)-b(c-a)-c(a-b)



166. Simplify the following:

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



Simplify

the

 $\left(a^2+b^2
ight)\left(a^2-b^2
ight)+\left(b^2+c^2
ight)\left(b^2-c^2
ight)+\left(c^2+a^2
ight)\left(c^2-a^2
ight)$



