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## MATHS

## BOOKS - JNAN PUBLICATION

## ALGEBRIC OPERATIONS

Example

1. Lets wirte the Algebraic expression and find their number
of terms. $4 x, 3 x+1,2 x+1,6 p-1,3 y+6$

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

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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: $3 y+6$.

## D Watch Video Solution

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 $z$.

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6. Let's form algebraic expresisons from the statement given below:
$q$ is added to twice of $P$

- Watch Video Solution

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

Multiply $x$ with square of $x$

## D Watch Video Solution

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 $a \& b$

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


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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: $5 x$.

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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: $7+2 x+x^{2}$.

## ( Watch Video Solution

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: $2 y^{3}+y$.

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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: $x^{2} y+x y^{2}+x y z$.

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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: $x y+2 x^{2} y^{2}$.

## D Watch Video Solution

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: $5 x+2 y$.
17. Let's find the numerical co-efficcients of the terms, other than constant term.
$2 x+3 y$

## D Watch Video Solution

18. Let's find the numerical co-efficcients of the terms, other than constant term.
$x^{2}+2 x+5$

## D Watch Video Solution

19. Let's find the numerical co-efficcients of the terms, other than constant term.
$x^{2}+5 x y-7 y$

## - Watch Video Solution

20. Let's find the numerical co-efficcients of the terms, other
than constant term.
$-5-z$

## - Watch Video Solution

21. Let's find the numerical co-efficcients of the terms, other
than constant term.
$x^{3}+x-y$

## ( Watch Video Solution

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

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

## - Watch Video Solution

23. In the following algebraic expression let's find the coefficients of $x$ in the terms or terms which has ' $x$ ' as their factor.
$y^{3} x+y^{2}$

## (D) Watch Video Solution

24. In the following algebraic expression find the coefficient of $x$ in the terms or terms which has ' $x$ ' as their factor:
$15 z^{2}-8 z x$.

## - Watch Video Solution

25. In the following algebraic expression find the coefficient of $x$ in the terms or terms which has ' $x$ ' as their factor: $-x-y+2$.

## (D) Watch Video Solution

26. In the following algebraic expression find the coefficient of $x$ in the terms or terms which has ' $x$ ' as their factor: $4+y+y x$.
27. In the following algebraic expression find the coefficient of $x$ in the terms or terms which has ' $x$ ' as their factor: $2+x+x y^{2}$.

## D Watch Video Solution

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

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

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30. Let's identify the like and dislike pairs of terms with reasons from the pairs of given below:$2 x, 2 y$

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31. Identify the like and unlike pairs of terms with reasons from the pairs of terms given: $7 \mathrm{x}, 8 \mathrm{x}$,

## - Watch Video Solution

32. Let's identify the like and dislike paris of terms with reasons from the pairs of given below:-
$-29 x, 6 x$

## D Watch Video Solution

33. Let's identify the like and unlike pairs of terms with reasons from the pairs of given below:-
$4 x y, 6 y z$

## D Watch Video Solution

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

## - Watch Video Solution

35. Let's identify the like and unlike pair of terms with reasons from the pair of given below:$5 x y, 6 x^{2} y^{2}$

## - Watch Video Solution

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

## - Watch Video Solution

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

## D Watch Video Solution

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

## D Watch Video Solution

39. Let's add the algebraic expressions
$\left(2 x^{2}+x+2\right)$ and $\left(x^{2}+2 x+2\right)$
40. Let's substracte the algebraic expressions

$$
\left(3 x^{2}+3 x-2\right) \mathfrak{o} m\left(5 x^{2}-2 x-3\right) .
$$

## (D) Watch Video Solution

41. Let's add the following :-
$(-5 x+3 y)$ and $(18 x-15 y)$

## - Watch Video Solution

42. Let's add the following :-
$(7 a-8 b+2 c)$ and $(2 a+3 b-d)$
43. Let 's subtract.
$(-m n-m+n)$ from $(4 m n+m+n)^{\prime}$

## (D) Watch Video Solution

44. Let 's subtract.
$\left(2 q^{2}+3 p^{2}-q p+p q^{2}\right) \operatorname{From}\left(p^{2}+q^{2}-p q+p^{2} q\right)$.

- Watch Video Solution

45. Let's calculate mentally :-
$5 x+3 x$
46. Let's calculate mentally :-
$9 y-3 y$

- Watch Video Solution

47. Let's calculate mentally :-
$-4 y+7 y$

D Watch Video Solution
48. Let's calculate mentally :-
$-10 x-2 x$

D Watch Video Solution
49. Let's calculate mentally :-
$3 a+4 a-2 a$

## D Watch Video Solution

50. Let's calculate mentally :-
$-7 x-2 x+5 x$
(D) Watch Video Solution
51. Let's calculate mentally :-
$6 p-2 p+3 p$

- Watch Video Solution

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

## (D) Watch Video Solution

53. Let's calculate mentally :-
$5 a^{2} b-2 a^{2} b-3 a^{2} b+8 a^{2} b$

## ( Watch Video Solution

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

D Watch Video Solution
55. My age is ' $x$ ' Pallabi is 2 years older than me. Let's find the sum of our ages.

## - Watch Video Solution

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.

## (3) Watch Video Solution

57. Today Ratul bought guava for $x$ rupees, apple for ( $x+15$ ) rupees and cucumber for $(2 x+3)$ 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 $(3 x+13)$ days. Findout last year how many days was Mohini present in school more than Firoz.

## D Watch Video Solution

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

## ( Watch Video Solution

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

## ( Watch Video Solution

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

## (D) Watch Video Solution

62. Add: 5a-4, $2 a+3,2 a-4$
63. Let's add :
$6 a^{2}+7 a+3,9 a^{2}-2 a+7,4 a^{2}-2 a+9$

## (D) Watch Video Solution

64. Let's add :
$2 a^{2} b+5 b^{2} a+7,3 a^{2} b-2 b^{2} a+6,8 a^{2} b-b^{2} a+9$

## D Watch Video Solution

65. Let's add :

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

## ( Watch Video Solution

66. Let's Substract:
$(2 x+3 y)$ from $(8 x+6 y)$

## (D) Watch Video Solution

67. Let's Substract:
$\left(m^{2}-2\right) \operatorname{From}\left(-3 m^{2}+2 m+2\right)$

## (D) Watch Video Solution

68. Let's Substract:
$`(8 x+4 y+7)$ from $(2 x+3 y)$

- Watch Video Solution

69. Let's Substract:
$\left(5 a^{2}+2 a-1\right)$ From $\left(-9 a^{2}+3 a+2\right)$

- Watch Video Solution

70. Subtract: $\left(-2 x^{2}+3 y^{2}\right)$ from $x$

## (D) Watch Video Solution

71. Let's Substract:
$\left(2 x^{2}+x y+3 y^{2}\right)$ From $\left(3 x^{2}+5 x y\right)$

Watch Video Solution
72. Simplify in following.
${ }^{`} 17 x^{\wedge} 2 y-3 x y^{\wedge} 2+14 x^{\wedge} 2 y+2 x y^{\wedge} 2$

## (D) Watch Video Solution

73. Simplify in following.
$-5 b+18 a+6 b-2 a$

## D Watch Video Solution

74. Simplify in following.
$4 m^{2}+3 n^{2}-\left(6 m^{2}+7 n^{2}\right)$

## ( Watch Video Solution

75. Simplify the following: $a-b-(b-a)$

## ( Watch Video Solution

76. Simplify the following: $(6 p-4 q+2 r)+(2 p+3 q-4 r)$

## - Watch Video Solution

77. Simplify the following: $-x+y+z-(2 x-3 y+z)$

## (D) Watch Video Solution

78. Simplify the following: $\left(x^{2}+2 x-5\right)+\left(3 x^{2}-8 x+5\right)$
79. Simplify the following: $\left(7 x^{2}-3 x+3\right)-\left(2 x^{2}-13 x-7\right)$

## D Watch Video Solution

80. Simplify in following.
$6 a-2 b-a b-(3 a+b-a b)+2 a b-b+a$

## D Watch Video Solution

81. Ramu had Rs. $\left(13 x^{2}-x-3\right)$. He spent Rs.
$\left(4 x^{2}-3 x-12\right)$. Let's find how much money Ramu has got.

- Watch Video Solution

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

## D Watch Video Solution

83. How much must be added to $-8 x^{2}+8 x+1$ to get
$-14 x^{2}+11 x-3$.

## ( Watch Video Solution

84. Let's find, what must be subtracted from $-11 x-7 y-9 z$ to get $-7 x+3 y-5 z$
85. How much is the sum of $\left(3 x^{2}+4 x\right)$ and $\left(5 x^{2}-x\right)$ more than $\left(3 x-5 x^{2}\right)$, calculate.

## - Watch Video Solution

86. Subtract the sum $\left(x^{2}-9 x\right)$ and $\left(-2 x^{2}+3 x+5\right)$ from the sum of $(5+9 x)$ and ( $6-7 x+4 x^{2}$ ).

## D Watch Video Solution

87. If $x=5$. Let's find the values of the following algebric
expression.
$6 x+11$
88. If $x=5$. Let's find the values of the following algebric expression.
$\frac{x}{2}+2$

- Watch Video Solution

89. If $x=5$. Let's find the values of the following algebric
expression.
$x^{2}+2 x-1$

## (D) Watch Video Solution

90. If $x=5$. Let's find the values of the following algebric
expression.
$x^{3}+8$

## - Watch Video Solution

91. If $x=5$. Let's find the values of the following algebric expression.
$10-x$

## - Watch Video Solution

92. If $y=-3$, Let's find the values of the following algebraic
expressions.
$\frac{y+5}{5}$

- Watch Video Solution

93. If $y=-3$, Let's find the values of the following algebric expressions.
$5-y$

## - Watch Video Solution

94. If $y=-3$, Let's find the values of the following algebric expressions.
$y+8$

## ( Watch Video Solution

95. If $y=-3$, Let's find the values of the following algebric
expressions.
$y^{2}+2 y+3$

## - Watch Video Solution

96. If $y=-3$, Let's find the values of the following algebric expressions.
$y^{\wedge} 3-1$

## - Watch Video Solution

97. Let's find the values of the following $x=2, y=-1$
$2 x+7 y$

- Watch Video Solution

98. Let's find the values of the following $x=2, y=-1$
$x^{2}+y^{2}$

## - Watch Video Solution

99. Let's find the values of the following $x=2, y=-1$
$x^{2}+7 x y+y^{2}$

## D Watch Video Solution

100. Let's find the values of the following $x=2, y=-1$
$x^{3}-8 y^{3}$

## D Watch Video Solution

101. Let's find the values of the following $x=2, y=-1$
$\frac{x}{9}+\frac{y}{4}$

## - Watch Video Solution

102. Let's find the product of the following:-
$7,2 x$

## - Watch Video Solution

103. Let's find the product of the following:-
$-3 x, 4 x$

- Watch Video Solution

104. Let's find the product of the following:-
$-2 x,-3 x^{2}$

- Watch Video Solution

105. Let's find the product of the following:-
$7 x, 0$

D Watch Video Solution
106. Let's find the product of the following:-
$3 a b, 4 a c$
107. Let's find the product of the following:-
$8 x^{2}, 2 y^{2}$

## - Watch Video Solution

108. Let's find the product of the following:-
$2 a^{2} b, 3 a b^{2}$

## - Watch Video Solution

109. Let's find the product of the following:-
$(-4 x y),(-4 x y)$

## - Watch Video Solution

110. Multiply first monomial with second monomial and write the product in corresponding blanks spaces.

| First monomial | 2 x | $-6 \mathrm{x}^{2}$ | -4 xy |
| :---: | :--- | :--- | :--- |
|  | Product |  |  |
| Second monomial |  |  |  |
| 3 x |  |  | $-12 \mathrm{x}^{2} \mathrm{y}$ |
| -4 x |  |  |  |
| 7 x |  |  |  |

## - Watch Video Solution

111. In each of the following cases, let's multiply and find their product.
$a b,\left(a^{2}-b^{2}\right)$

## - Watch Video Solution

112. In each of the following cases, let's multiply and find their product.
$4 a,(a+b-c)$

## (D) Watch Video Solution

113. In each of the following cases, let's multiply and find their product.
$6 a^{2} b^{2},(2 a+b)$

## - Watch Video Solution

114. In each of the following cases, let's multiply and find their product.
$x y z,\left(x^{2} y-y^{2} x+z^{2} y\right)$

## (D) Watch Video Solution

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

## - Watch Video Solution

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

## - Watch Video Solution

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

D Watch Video Solution
118. Simplify: 7a-2 (5a+6b-7)

## (D) Watch Video Solution

119. Let's Multiply :
$(10-3 x)(7+x)$

D Watch Video Solution
120. Let's Multiply :
$(11+2 x)(8-2 x y)$

Watch Video Solution
121. Let's Multiply :
(a + by) (4a-6y)

## (D) Watch Video Solution

122. Let's Multiply :
$\left(\frac{x}{y}-\frac{y}{3}\right)\left(\frac{2 x}{3}\right)-\frac{3 y}{5}$

## - Watch Video Solution

123. Let's Multiply :
$\left(\frac{2 a^{2}}{9}-\frac{1}{7}\right)\left(\frac{3 a}{5}-\frac{2}{5}\right)$

D Watch Video Solution
124. Let's find values of the following mentally:-

$$
3 a \times 4 b=?
$$

## D Watch Video Solution

125. Let's find values of the following mentally:-
$12 a b \div 3 a=$ ?

## D Watch Video Solution

126. Let's find values of the following mentally:-
$12 a b \div ?=4 a b$
127. Let's find values of the following mentally:-
$\left(-x^{2}\right) \times x=?$

## - Watch Video Solution

128. Let's find values of the following mentally:$9 x^{2} \div 3 x^{2}=?$

## D Watch Video Solution

129. Let's find values of the following mentally:-
$x^{2} \times x^{2}=?$

## D Watch Video Solution

130. Let's find values of the following mentally:-
$x^{2} \div ?=1$

## (D) Watch Video Solution

131. Let's find values of the following mentally:-
$0 \div a b=$

## D Watch Video Solution

132. Let's find values of the following mentally:-
$4 a^{2} b^{2} c^{2} \times ?=0$

## ( Watch Video Solution

133. Let's multiply :-
$2 x^{2} \times(-3 y) \times 6 z$

## (D) Watch Video Solution

134. Let's multiply :-
$7 x y^{2} \times 8 x^{2} y \times x y$

## (D) Watch Video Solution

135. Let's multiply :-
$\left(-3 a^{2}\right) \times\left(4 a^{2} b\right) \times(-2)$

- Watch Video Solution

136. Let's multiply :-
$(-2 m n) \times \frac{1}{6} m^{2} n^{2} \times 13 m^{4} n^{4}$

## (D) Watch Video Solution

137. Let's multiply :-
$\frac{2}{3} x^{2} y \times \frac{3}{5} x y^{2}$

## D Watch Video Solution

138. Let's multiply :-
$\left(-\frac{18}{5} x^{2}\right) \times\left(-\frac{25}{6} \times z^{2} y\right)$
(D) Watch Video Solution
139. Let's multiply :-
$\left(-\frac{3}{5} s^{2} t\right) \times\left(\frac{15}{7} s t^{2} u\right) \times\left(\frac{7}{9} s u^{2}\right)$

## D Watch Video Solution

140. Let's multiply :-
$\left(\frac{4}{3} x^{2} z y\right) \times\left(\frac{1}{3} y^{2} z x\right) \times(-6 x y z)$

## D Watch Video Solution

141. Let's multiply :-
$4 a(3 a+7 b)^{\prime}$
142. Let's multiply :-
$8 a^{2}(2 a+5 b)$

## (D) Watch Video Solution

143. Let's multiply :-
$-17 x^{2}(3 x-4)$

## Watch Video Solution

144. Multiply: $\frac{2}{3} a b c\left(a^{2}+b^{2}-3 c^{2}\right)$

## D Watch Video Solution

145. Multiply: $2 \times 5 x\left(10 x^{2} y-100 x y^{2}\right)$

## (D) Watch Video Solution

146. Multiply: ( $2 x+3 y$ ) ( $5 x-y$ )

## - Watch Video Solution

147. Multiply: $\left(a^{2}-b^{2}\right)(2 b-6 a)$

## - Watch Video Solution

148. Let's multiply :-

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

149. Seema Planted $3 x$ saplings in a row. In $2 x$ such row let's find how many saplings seema can plant.

## D Watch Video Solution

150. The length of a rectangle is $(4 x+1) m$ and breadth is $3 x$ m. Let's calculate the area of the rectangle.

## - Watch Video Solution

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 $2 x$ dozen of bananas.

## - Watch Video Solution

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

## D Watch Video Solution

153. The area of a rectangle is $8 x^{2} s q$. units. . If the length ios
$4 x$ units. Let's find its breadth.

## D Watch Video Solution

154. Sushobhan sold $729 y^{4}$ number of kites in $9 y$ 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. $8 x^{3} b, x^{2} b$

## (D) Watch Video Solution

156. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of algebraic number.
$-9 x y^{2}, x y$

## ( Watch Video Solution

157. Let's divide the first algebraic expression with the second algebraic expression in the folloiwng pairs of algebraic number.
$-15 x^{2} y^{4} z^{2},-x^{2} y z^{2}$

## D Watch Video Solution

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. $\left(5 a^{2}-7 a b^{2}\right), a$

## D Watch Video Solution

160. Let's divide the first algebraic expression write the second algebraic expression in the following pairs of algebraic number.
$\left(-48 x^{9}+12 x^{6}\right), 3 x^{3}$
(D) Watch Video Solution
161. Divide the first algebraic expression by the second algebraic expression in the pairs of algebraic numbers: $15 m^{2} n+20 m^{2} n^{2}, 5 m n$,

## D Watch Video Solution

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

$$
\left(36 a^{5} b^{2}-24 a^{2} b^{5}\right),\left(-4 a^{2} b^{2}\right)
$$

## (D) Watch Video Solution

163. Let's divide the first algebraic expression write the second algebraic expression in the folloiwng paris of
algebraic number.
$3 p q r+6 p^{2} q r^{2}-9 p^{3} q^{2} r^{3},-3 q p r$.

## D Watch Video Solution

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

## D Watch Video Solution

165. Simplify the $a(b-c)-b(c-a)-c(a-b)$

## ( Watch Video Solution

166. Simplify the following:
$x(x+4)+2 x(x-3)-3 x^{2}$

## - Watch Video Solution

167. Simplify the following:
$3 x^{2}+x(x+2)-3 x(2 x+1)$

## ( Watch Video Solution

168. Simplify the $(a+b)(a-b)+(b+c)(b-c)+(c+a)(c-a)$

## D Watch Video Solution

169. 

Simplify
the
$\left(a^{2}+b^{2}\right)\left(a^{2}-b^{2}\right)+\left(b^{2}+c^{2}\right)\left(b^{2}-c^{2}\right)+\left(c^{2}+a^{2}\right)\left(c^{2}-a^{2}\right)$

- Watch Video Solution


