MATHS

BOOKS - MAXIMUM PUBLICATION

BINOMIAL THEOREM

Example

1. Expand the following.

$(3a^2 - 2b)^4$

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2. Expand the following.

$$(3 - 4x^2)^5$$

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3. Expand the following.

$$\left(\frac{x}{2} - 2y\right)^6$$

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4. Expand the following.

$$\left(x+\frac{1}{x}\right)^{5}$$

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5. Write the general term in the expansion of the following,

$$\left(x^{2}-y\right)^{6}$$

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6. Write the general term in the expansion of the following,

$(x^2 - xy)^{12}$

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7. Write the general term in the expansion of the following,

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

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8. Write the general term in the expansion of the following,

$\left(\frac{x}{3}+9y\right)^{10}$

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9. If the coefficient of x^2 in the expansion of $(1+x)^n$ is 6 then the positive value of n.

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10. Find the $13^{t}h$ term in the expansion of

$$\left(9x - \frac{1}{3\sqrt{x}}\right)^{18}$$

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11. Write the middle term in the expansion of the following,

$$\left(3 - \frac{x^3}{6}\right)^{7}$$

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12. Write the middle term in the expansion of the following,

$$\left(x - \frac{1}{2y}\right)^{10}$$

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13. Write the middle term in the expansion of the following,

$$\left(x + \frac{2}{\sqrt{x}}\right)^{17}$$

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14. Find the term independent of x in the following expansion.

$$\left(x - \frac{1}{x}\right)^{12}$$

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15. Find the term independent of x in the following expansion.

$$\left(x^2 - \frac{1}{x}\right)^{9}$$

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16. Find the term independent of x in the following expansion.

$$\left(\sqrt{x}+\frac{1}{3x^2}\right)^{10}$$

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17. Find the term independent of x in the following expansion.

$$\left(\sqrt[3]{x}+\frac{1}{2\sqrt[3]{x}}\right)^{18}$$

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18. Find the coefficient of x^{10} in the expansion of $\left(2x^2 - \frac{3}{x}\right)^{11}$

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19. Find the coefficient of $a^5 b^7$ in the expansion of $(a - 2b)^{12}$

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20. Find the coefficient of

x^{11} in the expansion of $\left(x - \frac{2}{x^2}\right)^{17}$

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21. Find the coefficient of

x^{9} in the expansion of $\left(3x^2 + \frac{5}{x^3}\right)^{12}$

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22. Find the coefficient of

x^{20} in the expansion of $\left(3x^3 - \frac{2}{x^2}\right)^{40}$

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23. Find the term independent of x in the expansion of $\left(x^2 + \frac{2}{x}\right)^6$

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24. If the middle term in the expansion of $\left(x^m + \frac{2}{x}\right)^6$ is independent of x,find the value of m.

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25. Write the general term in the expansion of $\left(\frac{3x^2}{2} - \frac{1}{3x}\right)^6$

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26. Find the term independent of x in the expansion of $\left(\frac{3x^2}{2} - \frac{1}{3x}\right)^6$

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27. The number of terms in the expansion of $\left(\frac{x}{3} + 9y\right)^{10}$ is.....

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28. Find the middle term in the expansion of $\left(\frac{x}{3}+9y\right)^{10}$

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29. Find the general term in the expansion of $(x+y)^n$

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30. Find the middle term in the expansion of

$$\left(2x + \frac{1}{3y}\right)^{18}$$

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31. Write the general term in the expansion of

$$(a + b)^{12}$$

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32. Find the $9^{t}h$ term in the expansion of

$$\left(\frac{x}{2}+\frac{6}{x^{2}}\right)^{12}$$

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33. Find the general term in the expansion of

$$\left(3x^{2}-\frac{1}{3x}\right)^{9}$$

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34. Find the term independent of x in the expansion of $\left(3x^2 - \frac{1}{3x}\right)^9$

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35. Consider the expansion of $\left(x^2 - \frac{1}{3x}\right)^9$

Find the coefficient of x^9.

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36. Consider the expansion of $\left(x^2 - \frac{1}{3x}\right)^9$

Find the term which is independent of x.

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37. Consider the expansion of $\left(\frac{x}{9} + 9y\right)^2 n$

The number of terms in the expansion

is....

A. 2n

B. n+1

C. 2n+1

D. 2n-1

Answer: C

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38. Consider the expansion of $\left(\frac{x}{9}+9y\right)^2 n$

What is its $(n+1)^t h$ term?

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39. Consider the expansion of $\left(\frac{x}{9}+9y\right)^2 n$

If $n=5$,find its middle term.

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40. Write the general term in the expansion of

$(1+x)^{44}$

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41. Write $21^s t$ and $22^n d$ terms in the expansion of $(1+x)^{44}$

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42. If $21^s t$ and $22^n d$ terms in the expansion of $(1+x)^{44}$ are equal then find the value of x.

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43. Find $(x+y)^4-(x-y)4.$

Hence evaluate: $\left(\sqrt{5}+\sqrt{6}\right)^4-\left(\sqrt{5}-\sqrt{6}\right)^4$

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44. How many terms are there in the expansion of $(1+x)^2n$ (n is a positive integer)?

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45. Show that the middle term in the $(1+x)^2 n$ expansion os is $\frac{1.3.5.\ldots..(2n-1)}{n!}2^n x^n$

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46. Find the general term in the expansion of $\left(\frac{x}{2}-\frac{2}{x}\right)^{10}$

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47. Find the terms independent of x in the expansion of $\left(\frac{x}{2}-\frac{2}{x}\right)^{10}$.

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48. Find the number of terms in the expansion of $\left(x-\frac{1}{x}\right)^{14}$

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49. Find the general term in the expansion of $\left(x - \frac{1}{x}\right)^{14}$

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50. Find the term independent of x in the expansion of $\left(x - \frac{1}{x}\right)^{14}$

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51. Write the number of terms in the expansion of $(a-b)^2 n$

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52. Find the general term in the expansion of $\left(x^2-yx\right)^{12}, x \neq 0$

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53. Find the coefficient of x^6y^3 in the expansion of $(x+2y)^9$

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54. Write the expansion of $(a+b)^n$, where n is any positive integer.

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55. Find the value of 'a' if the $17th$ term and $18th$ term in the expansion of $(2+a)^{50}$ are equal.

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56. The number of term in the expansion of $\left(x-\frac{1}{x}\right)^{2}n$ is.....

A. n+1

B. n

C. 2n+1

D. 2n+2

Answer: C

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57. Find the value of 'a' if the $17^t h$ term and $18^t h$ term in the expansion of $(2+a)^{50}$ are equal.

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58. Number of terms in the expansion of $\left(x+\frac{1}{x}\right)^{20}$ is.....

A. 19

B. 20

C. 21

D. 22

Answer: C

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59. Consider the expansion of $\left(3x^2 - \frac{1}{3x}\right)^9$ find the coefficient of x^6 and the term independent of x.

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60. The $8^t h$ term in the expression of $\left(\sqrt{2} + \sqrt{3}\right)^7$ is .....

A. $27\sqrt{2}$

B. $27\sqrt{3}$

C. $72\sqrt{2}$

D. $72\sqrt{3}$

Answer: B

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61. Find the term independent of x in the expansion of $\left(x+\frac{1}{2x}\right)^{18}, x>0$

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62. Write the expansion of $(a+b)^4$

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63. Evaluate: $\left(\sqrt{5}+\sqrt{6}\right)^4+\left(\sqrt{5}-\sqrt{6}\right)^4$

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64. Consider the expansion of $\left(x+\frac{1}{x}\right)^{10}$

The number of terms in the expansion is.....

A. 10

B. 9

C. 11

D. 12

Answer: C

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65. Consider the expansion of $\left(x+\frac{1}{x}\right)^{10}$

Find the term which is independent of x in the above expansion.

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66. Write the number of terms in the expansion of $(a+b)^n$

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67. Expand $\left(\frac{x}{3}+\frac{1}{x}\right)^5$

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68. Find the general term in the expansion of $\left(x^2-y\right)^6$.

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