



MATHS

BOOKS - NCERT MATHS (ENGLISH)

BINOMIAL THEOREM

Shrot Answer Type Question

1. Find the term independent of x, where

x
eq 0, in the expansion of $\left(rac{3x^2}{2}-rac{1}{3x}
ight)^{15}$.



2. If the term free from x in the expansion of

$$\left(\sqrt{x}-rac{k}{x^2}
ight)^{10}$$
 is 405 , find the value of $k\cdot$

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3. Find the coefficient of x in the expansion of

$$ig(1-3x+7x^2ig)ig(1-xig)^{16}.$$

4. Find the term independent of
$$x$$
 in the expansion of $\left(3x - \frac{2}{x^2}\right)^{15}$.

5. Find the middle term (terms) in the expansion of (i) $\left(\frac{x}{a} - \frac{a}{x}\right)^{10}$ (ii) $\left(3x - \frac{x^3}{6}\right)^9$

6. Find the coefficient of x^{15} in the expansion

of
$$\left(x-x^2
ight)^{10}$$

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7. The coefficient of x^{-17} in the expansion of

$$\left(x^4-rac{1}{x^3}
ight)^{15}$$
 is

8. Find the sixth term in the expansion $\left(y^{rac{1}{2}}+x^{rac{1}{3}}
ight)^n$, if the binomial coefficient of the

third term of the end is 45.



9. If the coefficients of (2r + 4)th, (r - 2)th terms

in the expansion of $\left(1+x
ight)^{18}$ are equal, find r.

10. If the coefficient of 2nd, 3rd and 4th terms in the expansion of $(1+x)^{2n}$ are in A.P. , show that $2n^2 - 9n + 7 = 0$.

11. Find the coefficient of x^4 in the expansion of $\left(1+x+x^2+x^3
ight)^{11}$.

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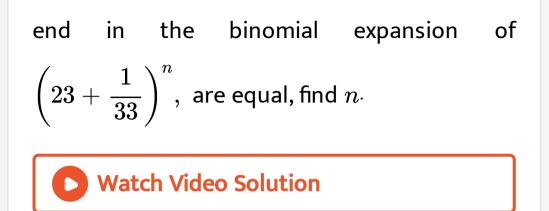
Long Answer Type Question

1. If p is a real number and the middle term in the expansion of $\left(\frac{p}{2}+2\right)^8$ is 1120, then find the value of p.

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2. Show that the middle term in the expansion

3. If the seventh term from the beginning and



4. If o be the sum of odd terms and E that of even terms in the expansion of $(x + a)^n$ prove that: $O^2 - E^2 = (x^2 - a^2)^n$ (ii) $4OE = (x + a)^{2n} - (x - a)^{2n}$ (iii) $2(O^2 + E^2) = (x + a)^{2n} + (x - a)^{2n}$

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5. If
$$x^p$$
 occurs in the expansion of $(x^2 + 1/x)^{2n}$, prove that its coefficient is $\frac{(2n)!}{\left[\frac{1}{3}(4n-p)\right]!\left[\frac{1}{3}(2n+p)\right]!}$. **Vatch Video Solution**

6. Find the term independent of x in the expansion of

$$ig(1+x+2x^3ig)ig[ig(3x^2\,/\,2ig)\,-\,(1\,/\,3)ig]^9$$

Objective Type Question

1. about to only mathematics

A. 50

B. 202

C. 51

D. None of these

Answer: A



2. Given positive integers r > 1, n > 2, nbeing even and the coefficient of (3r)th term and (r+2)th term in the expansion of $(1+x)^{2n}$ are equal; find r

A.
$$n=2r$$

 $\mathsf{B.}\,n=3r$

C. n = 2r + 1

D. None of these

Answer:



3. Find the two successive terms in the expansion of $(1 + x)^{24}$ whose coefficients are in the ratio 1:4.

A. 3rd and 4th

B. 4th and 5th

C. 5th and 6th

D. 6th and 7th

Answer: C



4. Prove that the coefficient of x^n in the expansion of $(1+x)^{2n}$ is twice the coefficient of x^n in the expansion of $(1+x)^{2n-1}$

A. 1:2

B. 1:3

C. 3:1

D. 2:1

Answer:



5. If the coefficients of 2nd, 3rd and 4th terms in the expansion $of(1 + x)^n$ are in A.P., then find the value of n.

A. 2

B. 7

C. 11

D. 14

Answer:



6. If A and B are the coefficients of x^n in the expansion $(1+x)^{2n}$ and $(1+x)^{2n-1}$ respectively, then $rac{A}{B}$ is

B. 2

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

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

Answer: B



7. If the middle term in the binomial expansion

of
$$\left(rac{1}{x}+x\sin x
ight)^{10}$$
 is equal to $rac{63}{8},\,$ find the

value of x.

A.
$$2n\pi+rac{\pi}{6}$$

B. $n\pi+rac{\pi}{6}$
C. $n\pi+(-1)^nrac{\pi}{6}$

D.
$$n\pi+(-1)^nrac{\pi}{3}$$

Answer: C

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8. The largest coefficient in the expansion of $(1 + 1)^{30}$:

 $\left(1+x
ight)^{30}$ is.....

9. The number of terms in the expansion of $(a+b+c)^n, wheren \in N_1$ Watch Video Solution 10. In the expansion of $\left(x^2-rac{1}{x^2}
ight)^{16}$, the value of constant term is..... Watch Video Solution

11. If the seventh, terms from the beginning and the end in the expansion of $\left(\sqrt[3]{2}+rac{1}{\sqrt[3]{3}}
ight)^n$ are equal, then n is equal to (i) 10 (ii) 11 (iii) 12 (iv) 13 Watch Video Solution

12. The coefficient of $a^{-6}b^4$ in the expansion of

$$\left(rac{1}{a}-rac{2b}{3}
ight)^{10}$$
 is.....

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13. Middle term in the expansion of $\left(a^3+ba
ight)^{28}$ is

14. If p and q are positive, then prove that the coefficients of x^p and x^q in the expansion of $(1+x)^{p+q}$ will be equal.

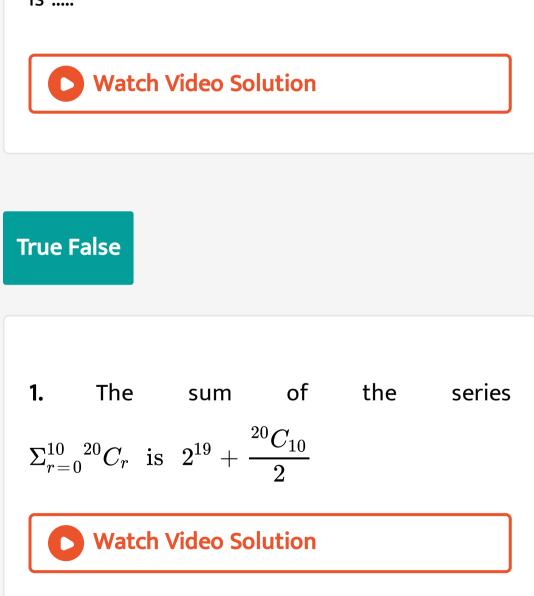


15. The position of the term independent of x

in the expansion of
$$\left(\sqrt{rac{x}{3}}+rac{3}{2x^2}
ight)^{10}$$
 is

16. If 25^{15} is divided by 13, then the remainder

is



2. $7^9 + 9^7$ is divisible by (A) 16 (B) 24 (C) 64 (D)



3. The number of term in the expansion of

$$\left[\left(2x+3y
ight)^4
ight]^7$$
 is 8

4. Find the sum of the coefficient of to middle terms in the binomial expansion of $(1+x)^{2n-1}$

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5. Write last two digits of the number 3^{400} .



6. If the expansion of $\left(x-rac{1}{x^2}
ight)^{2n}$ contains a

term independent of x, then n is a multiple of

2.



7. The number of term is the expansion of

 $\left(a+b
ight)^n$, where $n\in N$, is one less than the

power n

