



DPP

DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Subject : Maths
DPP No. :2

Topic :- Binomial Theorem

- $1 + \frac{2 \cdot 1}{3 \cdot 2} + \frac{2 \cdot 5}{3 \cdot 6} \left(\frac{1}{2}\right)^2 + \frac{2 \cdot 5 \cdot 8}{3 \cdot 6 \cdot 9} \cdot \left(\frac{1}{2}\right)^3 + \dots$ is equal to
 a) $2^{1/3}$ b) $3^{1/4}$ c) $4^{1/3}$ d) $3^{1/3}$
- If in the expansion of $\left(3x - \frac{2}{x^2}\right)^{15}$ rth term is independent of x , then value of r is
 a) 6 b) 10 c) 9 d) 12
- If $(1+x)^n = C_0 + C_1x + C_2x^2 + \dots + C_nx^n$, then the value of $\sum_{0 \leq r < s \leq n} (r+s)(C_r + C_s)$ is
 a) $n^2 \cdot 2^n$ b) $n \cdot 2^n$ c) $n^2 \cdot 2^{2n}$ d) None of these
- If $C_0, C_1, C_2, \dots, C_n$ denote the binomial coefficient in the expansion of $(1+x)^n$, then the value of $aC_0 + (a+b)C_1 + (a+2b)C_2 + \dots + (a+nb)C_n$, is
 a) $(a+nb)2^n$ b) $(a+nb)2^{n-1}$ c) $(2a+nb)2^{n-1}$ d) $(2a+nb)2^n$
- $C_0C_r + C_1C_{r+1} + C_2C_{r+2} + \dots + C_{n-r}C_n$ is equal to
 a) $\frac{(2n)!}{(n-r)!(n+r)!}$
 b) $\frac{n!}{r!(n+r)!}$
 c) $\frac{n!}{(n-r)!}$
 d) None of these
- If the coefficients of x^2 and x^3 in the expansion of $(3+ax)^9$ are the same, then the value of a , is
 a) $-\frac{7}{9}$ b) $-\frac{9}{7}$ c) $\frac{7}{9}$ d) $\frac{9}{7}$
- The total number of terms in the expansion of $(x+a)^{100} + (x-a)^{100}$ after simplification will be
 a) 202 b) 51 c) 50 d) None of these
- Coefficient of x^{19} in the polynomial $(x-1)(x-2)\dots(x-20)$ is equal to
 a) 210 b) -210 c) 20! d) None of these
- The sum of the last eight coefficient in the expansion of $(1+x)^{15}$ is
 a) 2^{16} b) 2^{15} c) 2^{14} d) None of these
- The number of terms in the expansion of $(a+b+c)^n$ will be
 a) $n+1$
 b) $n+3$
 c) $\frac{(n+1)(n+2)}{2}$
 d) None of these
- The coefficient of y in the expansion of $(y^2 + c/y)^5$, is



12. The value of $(0.99)^{15}$ is
- a) 29 c b) 10 c c) $10 c^3$ d) $20 c^2$
- a) 0.8432 b) 0.8601 c) 0.8502 d) None of these
13. The sum of the coefficients in the expansion of $(x + y)^n$ is 4096. The greatest coefficient in the expansion is
- a) 1024 b) 924 c) 824 d) 724
14. If in the expansion of $(1 + x)^n$, the coefficient of r th and $(r + 2)$ th term be equal, then r is equal to
- a) $2n$ b) $\frac{2n + 1}{2}$ c) $\frac{n}{2}$ d) $\frac{2n - 1}{2}$
15. If the second, third and fourth term in the expansion of $(x + a)^n$ are 240, 720 and 1080 respectively, then the value of n is
- a) 15 b) 20 c) 10 d) 5
16. The value of $\frac{1}{81^n} - \frac{10}{81^n} {}^{2n}C_1 - \frac{10^2}{81^n} {}^{2n}C_2 - \frac{10^3}{81^n} {}^{2n}C_3 + \dots + \frac{10^{2n}}{81^n}$ is
- a) 2 b) 0 c) $\frac{1}{2}$ d) 1
17. If $(1 + x + x^2)^n = \sum_{r=0}^{2n} a_r x^r$
- then, $a_1 - 2a_2 + 3a_3 \dots - 2na_{2n}$ is equal to
- a) n b) $-n$ c) 0 d) $2n$
18. The coefficient of the middle term in the expansion of $(1 + x)^{2n}$, is
- a) $\frac{1 \cdot 3 \cdot 5 \dots (2n - 1)}{n!} 2^n$ b) $\frac{1 \cdot 3 \cdot 5 \dots (2n - 1)}{(n!)^2} 2^n$ c) $\frac{(2n)!}{(n!)^2} 2^{2n}$ d) None of these
19. The constant term in the expansion of $(1 + x)^{10} \left(1 + \frac{1}{x}\right)^{12}$ is
- a) ${}^{22}C_{10}$ b) 0 c) ${}^{22}C_{11}$ d) None of these
20. If $a_1 = 1$ and $a_n = na_{n-1}$ for all positive integer $n \geq 2$, then a_5 is equal to
- a) 125 b) 120 c) 100 d) 24