SUPER 60

JEE MAINS: APRIL 2019 SPECIAL

Target 75+ in Maths

SEQUENCES AND SERIES

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Ques No.	Question
1 - 2649341	If 5th , 8th and 11th terms of a G.P. are p,q and s respectively then , (A) $p^2 = qs$ (B) $q^2 = ps$ (C) $s^2 = pq$ (D) none Watch Free Video Solution on Doubtnut
2 - 3301228	Total number of terms in the progression $96 + 48 + 24 + 12 + ... + \frac{3}{16}$ is (A) 9 (B) 10 (C) 15 (D) 20 Watch Free Video Solution on Doubtnut
3 - 5727594	Find the 9th term in series 2,4,8,16.... (A) 512 (B) 256 (C) 128 (D) none of these Watch Free Video Solution on Doubtnut
4 - 15149	If a,b,c,d are in G.P., then the value of $(a-c)^2 + (b-c)^2 + (b-d)^2 - (a-d)^2$ is (A) 0 (B) 1 (C) $a+d$ (D) $a-d$ Watch Free Video Solution on Doubtnut
5 - 206061	If 6th term of a GP. is $-\frac{1}{32}$ and 9th term is $\frac{1}{256}$, then 11th term = (A) 1024 (B) $\frac{1}{1024}$ (C) $\frac{1}{256}$ (D) $\frac{1}{512}$ Watch Free Video Solution on Doubtnut
6 - 85723	The $6th$ term from the end of the $G.P. 8, 4, 2, 1, ... \frac{1}{1024}$ (A) $\frac{1}{64}$ (B)32 (C)$\frac{1}{32}$ (D)none of these Watch Free Video Solution on Doubtnut
7 - 99445	If $x, 2x+2, 3x+3$are in $G.P.$, then the fourth term is (A) 27 (B) -27 (C)13.5 (D)-13.5

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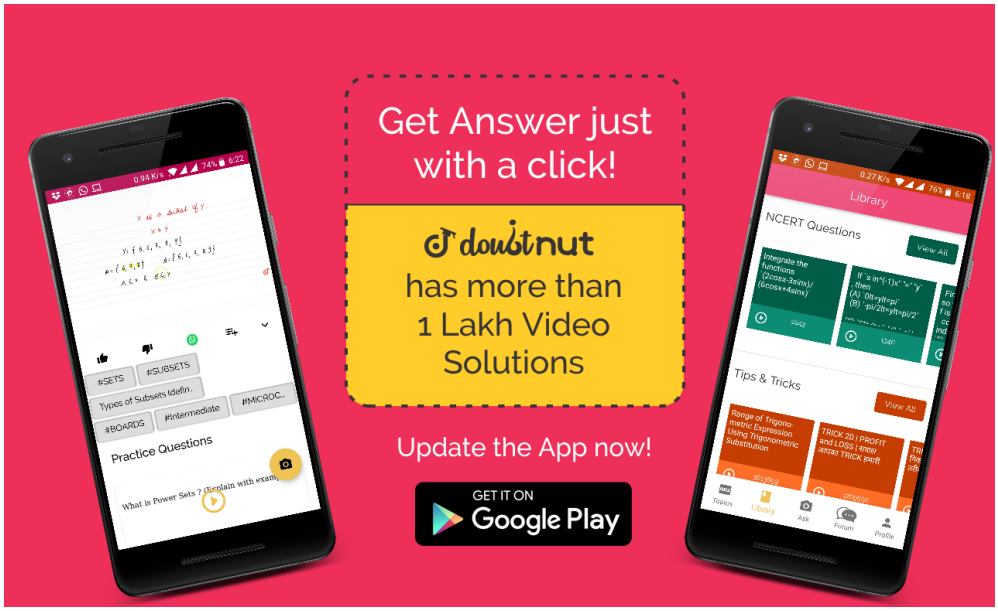
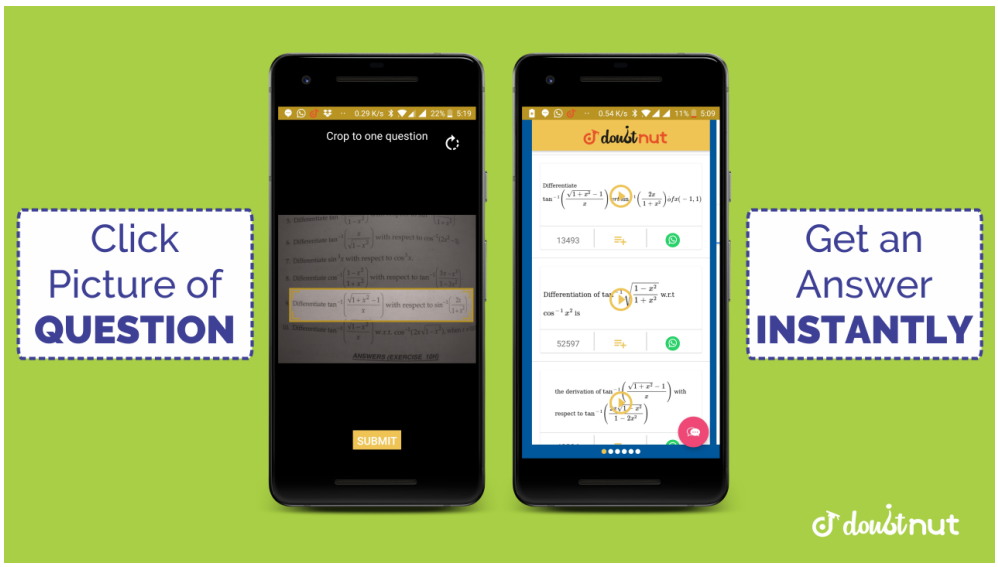
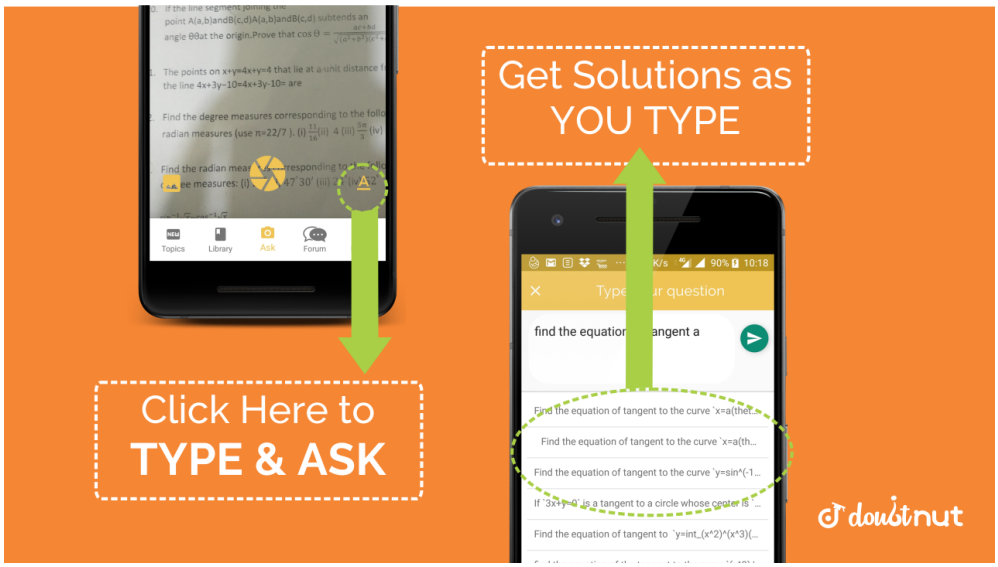
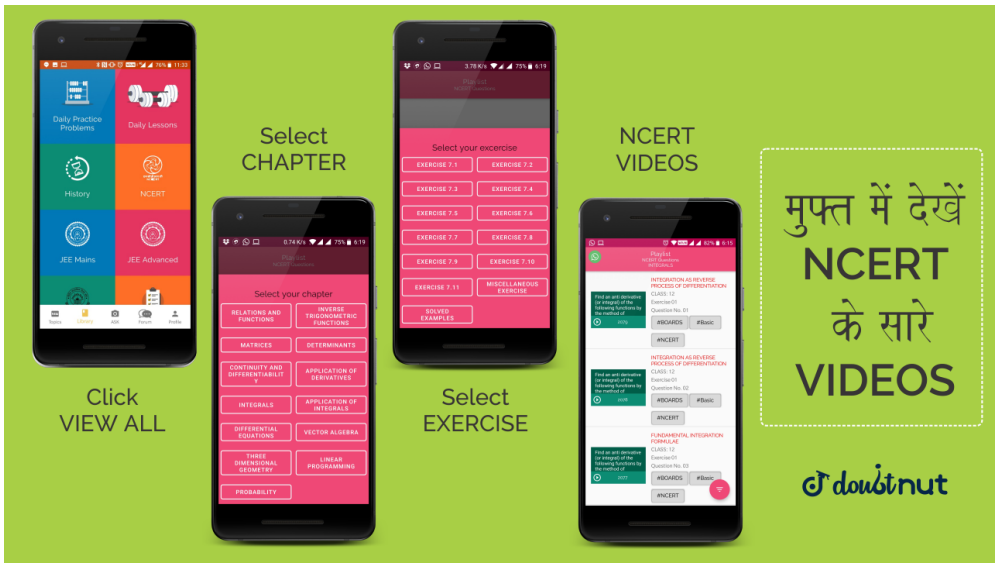
doubtnut पढ़ना हुआ आसान	
8 - 3022900	The nth term of a GP is 128 and the sum of its n terms is 255. If its common ratio is 2 then its first term is. (A)$\frac{1}{2}$ (B) $\frac{1}{4}$ (C) $\frac{1}{8}$ (D)1 Watch Free Video Solution on Doubtnut
9 - 206124	If the fourth term of a H.P is $\frac{1}{3}$ and 7th term is $\frac{1}{4}$, then 16th term is (A) $\frac{1}{5}$ (B) $\frac{1}{6}$ (C) $\frac{1}{7}$ (D) $\frac{1}{8}$ Watch Free Video Solution on Doubtnut
10 - 41951	The sixth term of an $A.P.$ $a_1, a_2, a_3, ...a_n$ is 2. If the quantity $a_1a_4a_5$ is minimum then the common difference of the $A.P.$, is (A)$\frac{2}{3}$ (B)$\frac{8}{5}$ (C)$\frac{1}{3}$ (D)$\frac{2}{9}$ Watch Free Video Solution on Doubtnut
11 - 261587	The number of terms in the sequence $1, 3, 6, 10, 15, 21, ...5050$ is- (A) 50 (B) 100 (C) 101 (D) 105 Watch Free Video Solution on Doubtnut
12 - 85747	The sum of n terms of an $A.P.$ is $3n^2 + n$; then its pth term is (A) $6P + 2$ (B) $6P - 2$ (C) $6P - 1$ (D) none of these Watch Free Video Solution on Doubtnut
13 - 41946	If sum of first n terms of a series is $\frac{n}{n+1}$ find $\frac{1}{T_8}$ where T_8 is the eighth term of the series (A) 64 (B) 80 (C) 75 (D) 72 Watch Free Video Solution on Doubtnut

14 - 97828	$\frac{1}{2.5}+\frac{1}{5.8}+\frac{1}{8.11}+$ ...n terms= (A)$\frac{n}{6n+4}$ (B) $\frac{n}{3n+2}$ (C)$\frac{n}{4n+6}$ (D)$\frac{1}{2(2n+3)}$ Watch Free Video Solution on Doubtnut
15 - 246024	The sum of the first 20 terms common between the series 3 +7+11+15+... and 1+6+11 +16+... is A) 4020 B) 4220 C)4200 D) 4000 Watch Free Video Solution on Doubtnut
	
16 - 1212279	The sum to 101 terms of an A.P. is 1212. The middle term is (A) 6 (B) 12 (C) 24 (D) 26 Watch Free Video Solution on Doubtnut
17 - 7706	The value of $\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+.....+\frac{1}{90}$ is : (A) $\frac{1}{5}$ (B)$\frac{2}{5}$ (C)$\frac{3}{5}$ (D)none of these Watch Free Video Solution on Doubtnut
18 - 17585	The sum of the infinite series is $\frac{1}{1.3}+\frac{1}{3.5}+\frac{1}{5.7}+...\infty$ (A) $\frac{1}{7}$ (B) $\frac{1}{3}$ (C) $\frac{1}{5}$ (D) $\frac{1}{2}$ Watch Free Video Solution on Doubtnut
19 - 58345	Find the sum of n terms of the series $\frac{1}{2\cdot 4}+\frac{1}{4\cdot 6}+....$ (A) $\frac{n}{n+1}$ (B) $\frac{n}{4(n+1)}$ (C) $\frac{1}{(2n)(2n+2)}$ (D)$\frac{1}{2^n(2^n+2)}$ Watch Free Video Solution on Doubtnut
20 - 60463	The sum of $1^3+2^3+3^3+....+15^3$ is (A) 22000 (B) 10000 (C) 14400 (D) 15000 Watch Free Video Solution on Doubtnut

21 - 3309727	The value of $\left[\left(-2\frac{3}{4}\right)-\left(-1\frac{3}{4}\right)\right]+\left[\left(-2\frac{3}{4}\right)-\left(-1\frac{3}{4}\right)\right]+\ldots$ upto 30 terms is (A) -1 (B) 1 (C) 30 (D) -30 Watch Free Video Solution on Doubtnut
22 - 42006	If $1+2+3+\ldots\ldots+49=x$, then $1^3+2^3+3^3+\ldots\ldots\ldots+49^3$ is equal to (A) X^3 (B) X^2 (C) X^2+X (D) none of these Watch Free Video Solution on Doubtnut
23 - 168851	The value of $1^2+3^2+5^2+\ldots+25^2$ is (A) 1728 (B) 1456 (C) 2925 (D) none Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
24 - 39532	The value of $\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\ldots\frac{1}{90}$ is (A)$\frac{1}{5}$ (B) $\frac{2}{5}$ (C) $\frac{3}{5}$ (D) None of these Watch Free Video Solution on Doubtnut
25 - 92456	The value of $1+1.1!+2.2!+3.3!+\ldots\ldots\ldots.+n.n!$ is (A) $(n+1)!+1$ (B) $(n-1)!+1$ (C) $(n+1)!-1$ (D) $(n+1)!$ Watch Free Video Solution on Doubtnut
26 - 206230	The sum of 15 terms of the series $1+(1+3)+(1+3+5)+(1+3+5+7)+\ldots\ldots$ is $10\times\lambda$ then value of $\lambda=$ (A) 124 (B) 240 (C) 220 (D) 142 Watch Free Video Solution on Doubtnut
27 - 376111	Find the sum of the series $1+(1+2)+(1+2+3)+(1+2+3+4)+\ldots+(1+2+3+\ldots\ldots+20)$. (A) 1470 (B) 1540 (C) 1610 (D) 1370 Watch Free Video Solution on Doubtnut

28 - 46703	50th term of the sequence $3+12+25+42+\ldots.$ is (A) 5145 (B) 5148 (C) 5142 (D) 5195 Watch Free Video Solution on Doubtnut
29 - 4055383	The maximum sum of the series $20+19\frac{1}{3}+18\frac{2}{3}+\ldots.$ is (A)310 (B) 300 (C) 0320 (D) none of these Watch Free Video Solution on Doubtnut
30 - 4954879	99th term of the series $2+7+14+23\ldots$ (A) 9998 (B) 9999 (C) 10000 (D)100000 Watch Free Video Solution on Doubtnut
31 - 4728753	If x,y,z are in GP and $a^x=b^y=c^z$ then (A) $\log_b a=\log_a c$ (B) $\log_c b=\log_a c$ (C) $\log_b a=\log_c b$ (D) none of these Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
32 - 5991166	Let a,b are roots of equation $x^2-3x+p=0$ and c,d are roots of equation $x^2-12x+q=0$. If a,b,c,d (taken in that order) are in geometric progression then $\frac{q+p}{q-p}$ is equal to (A) $\frac{5}{7}$ (B) $\frac{15}{17}$ (C) $\frac{17}{15}$ (D) $\frac{7}{5}$ Watch Free Video Solution on Doubtnut
33 - 115061	The real roots of the equation $2x^3-19x^2+57x+k=0$ are the first three terms of a geometric progression.The value of k equals - (A) 216 (B) 108 (C) -54 (D) -108 Watch Free Video Solution on Doubtnut
34 - 8726	If x, $2y$, z are in AP where the distinct numbers x, y, z are in GP. Then the common ratio of the GP is (A) 3 (B) $\frac{1}{3}$ (C) 2 (D) $\frac{1}{2}$

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35 - 52558	If a, b, c are in GP., then the equations $ax^2+2bx+c=0$ and $dx^2+2ex+f=0$have a common root if $\frac{d}{a},\frac{e}{b},\frac{f}{c}$ are in (A) A.P. (B) G.P. (C) H.P. (D) none of these Watch Free Video Solution on Doubtnut
36 - 42114	If $\frac{1}{b-a}+\frac{1}{b-c}=\frac{1}{a}+\frac{1}{c}$, then a,b,c are in (A) AP (B) GP (C) HP (D) NONE Watch Free Video Solution on Doubtnut
37 - 47799	Greatest positive term of a H.P. whose first who first two terms are $\frac{2}{5}$ and $\frac{12}{23}$ is (A) 6 (B) 5 (C) $\frac{1}{6}$ (D) $\frac{37}{7}$ Watch Free Video Solution on Doubtnut
38 - 1130223	If $\cos(\theta-\phi),\cos(\theta),\cos(\theta+\phi)$ are in HP, the the value of $\cos(\theta)\sec\left(\frac{\phi}{2}\right)$ is (A) 2 (B) $\sqrt{2}$ (C) 1 (D) none of these Watch Free Video Solution on Doubtnut
39 - 90156	In a class of 15 students, on an average, each student got 12 books. If exactly two students received same number of books, and remaining student books average be an integer then which of the following could be the number of books received by each of the two students who received same number of books? (A) 11 (B) 15 (C) 20 (D) 25 Watch Free Video Solution on Doubtnut
40 - 2764693	

	if $2^a 2^b 2^c = 256$, vthen the average of a, b, c is (A) $\frac{8}{3}$ (B) $\frac{256}{3}$ (C)$\frac{4}{3}$ (D) 8 Watch Free Video Solution on Doubtnut
41 - 27273	let the rth term of the series is given by $tr = \frac{r}{1+r^2+r^4}$ then $\lim_{n \to \infty} \sum_{r=1}^{n} t_r$ is equal to: (A) $\frac{1}{2}$ (B) 1 (C) 2 (D) $\frac{1}{4}$ Watch Free Video Solution on Doubtnut
42 - 4582561	The sum of $\left[\frac{1}{2}\right] + \left[\frac{1}{2} + \frac{1}{2000}\right] + \left[\frac{1}{2} + \frac{2}{2000}\right] + \left[\frac{1}{2} + \frac{3}{2000}\right] + + \left[\frac{1}{2} + \frac{1999}{2000}\right]$ where [.] denote the greatest integer function, is equal to: (A) 1000 (B) 999 (C) 1001 (D) none of these Watch Free Video Solution on Doubtnut
43 - 123375	Let P be a product given by $P = (x+a_1)(x+a_2)\ldots\ldots(x+a_n)$ and Let $S_1 = a_1 + a_2 + \ldots\ldots + a_n = \sum_{i=1}^{n} a_i, S_2 \sum \sum_{i<j} a_i . a_j, S_3 = \sum \sum_{i<j<k}$, and so onow that then it can be show that $P = x^n + S_1 x^{n-1} + S_2 x^{n-2} + \ldots\ldots\ldots + S_n$. The coefficient of x^8 in the expression $(2+x)^2(3+x)^3(4+x)^4$ must be (A)26 (B)27 (C)28 (D)29 Watch Free Video Solution on Doubtnut
44 - 61890	Sum of n terms of series $12 + 16 + 24 + 40 + \ldots.$ (A) $2(2^n - 1) + 8n$ (B) $2(2^n - 1) + 6n$ (C) $3(2^n - 1) + 8n$ (D) $4(2^n - 1) + 8n$ Watch Free Video Solution on Doubtnut
45 - 1212559	If the sum to infinity of the series $1 + 4x + 7x^2 + 10x^3 + \ldots\ldots\ldots\ldots$ is $\frac{35}{16}$ then $x =$ (A) $\frac{1}{5}$ (B) $\frac{2}{5}$ (C) $\frac{3}{7}$ (D)$\frac{1}{7}$ Watch Free Video Solution on Doubtnut
46 - 33630	If a, b, c be the pth, qth and rth terms of a G.P., then (q-r) log a+ (r- p)log b+ (p-q) log c is equal to (A) 0 (B) abc (C) ap+bq+cr (D) none of these Watch Free Video Solution on Doubtnut
47 - 5837957	If the sum of n terms of a G.P. (with common ratio r) beginning with the pth term is k times the sum of an equal number of terms of the same series beginning with the qth term, then the value of k is. (A) $r^{\frac{p}{q}}$ (B) $r^{\frac{q}{p}}$ (C) r^{p-q} (D) r^{p+q} Watch Free Video Solution on Doubtnut

48 - 39884

Q. if $x_1, x_2.....x_n$ are in $H.P.$, then $\sum_{r=1}^{n} x_r x_{r+1}$ is equal to : (A) $(n-1)x_1x_n$ (B) nx_1x_n (C) $(n+1)x_1x_n$ (D) $(n+2)x_1x_n$

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49 - 3442524

The sixth HM between 3 and $\frac{6}{13}$ (A) $\frac{63}{120}$ (B) $\frac{63}{12}$ (C) $\frac{126}{105}$ (D) $\frac{120}{63}$

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50 - 1393176

If $S = 1 + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + ...$,then $1 + \frac{1}{9} + \frac{1}{25} + \frac{1}{49}....$ equals (A) $\frac{S}{2}$ (B) $\frac{3S}{4}$ (C) $S - \frac{1}{4}$ (D) $S - \frac{1}{2}$

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51 - 20091

If $\sum_{i=1}^{n} Tr = \frac{n(n+1)(n+3)}{3}$, then $\sum_{r=1}^{n} \frac{2008}{T_r}$ is (A) 2008 (B) 3012 (C) 4016 (D) 8032

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52 - 182850

Let n denote the number of all n-digit positive integers formed by the digits $0, 1$ or both such that no consecutive digits in them are 0. Let b_n = the number of such n-digit integers ending with digit 1 and c_n= the number of such n-digit integers ending with digit 0. The value of b_6, is (A) 7 (B) 8 (C) 9 (D) 11

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53 - 15322

The sum of n terms of a series is $An^2 + Bn$, then the nth term is (A) A(2n-1)-B (B) A(1-2n)+B (C) A(1-2n)-B (D) A(2n-1)+B

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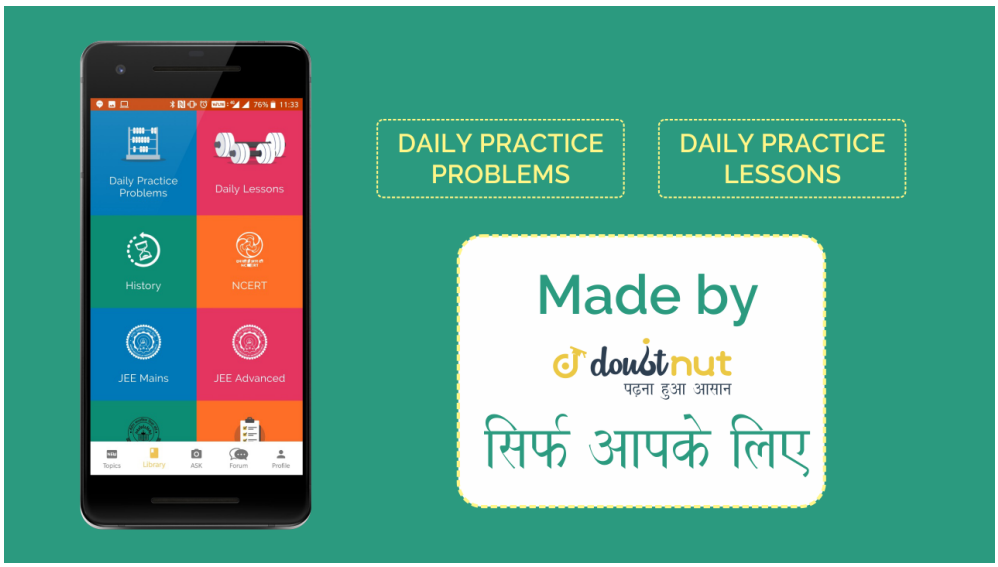
54 - 4088874	The sum $\frac{1}{1+1^2+1^4}+\frac{2}{1+2^2+2^4}+\frac{3}{1+3^2+3^4}+\ldots\ldots\ldots\ldots+\frac{99}{1+99^2+99^4}$ (A) 0.46 and 0.47 (B) 0.47 and 0.48 (C) 0.48 and 0.49 (D) 0.49 and 0.50 Watch Free Video Solution on Doubtnut
55 - 31257	The sum of 50 terms of the series $1+2\left(1+\frac{1}{50}\right)+3\left(1+\frac{1}{50}\right)^2+$ is given by (A) 2500 (B) 2550 (C) 2450 (D) none of these Watch Free Video Solution on Doubtnut
	
56 - 5684119	The sum $\sum_{r=1}^{10}\left(r^2+1\right)\times(r!)$ is equal to : (A) $11!$ (B) $10\times 11!$ (C) $101\times 11!$ (D) $11\times 11!$ Watch Free Video Solution on Doubtnut
57 - 27276	$\sum_{n=3}^{\infty}\frac{1}{n^5-5n^3+4n}$ (A) $\frac{1}{120}$ (B) $\frac{1}{96}$ (C) $\frac{1}{24}$ (D) $\frac{1}{144}$ Watch Free Video Solution on Doubtnut
58 - 113650	Find the nth term of the series $3.8+6.11+9.14+12.17+..$ (A) $3n(3n+5)$ (B) $3n(n+5)$ (C) $n(3n+5)$ (D) $n(n+5)$ Watch Free Video Solution on Doubtnut
59 - 344952	Sum of series $\frac{9}{1!}+\frac{19}{2!}+\frac{35}{3!}+\frac{57}{4!}+\ldots$ (A) $7e-3$ (B) $12e-5$ (C) $16e-5$ (D) none Watch Free Video Solution on Doubtnut
60 - 1439031	

$f(1) = 1$ and $f(n) = 2\sum_{r=1}^{n-1} f(r)$. Then $\sum_{n=1}^{m} f(n)$ is equal to (A)$3^m - 1$ (B)3^m (C)3^{m-1} (D)none of these

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ANSWERS

Ques No.	Answer
1 - 2649341	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
2 - 3301228	**B** Watch Free Video Solution of this Question on Doubtnut

Ques No.	Answer
3 - 5727594	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
4 - 15149	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
5 - 206061	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
6 - 85723	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
7 - 99445	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
8 - 3022900	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
9 - 206124	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
10 - 41951	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**

11 - 261587	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
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Ques No.	**Answer**
13 - 41946	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
14 - 97828	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
15 - 246024	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
16 - 1212279	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
17 - 7706	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
18 - 17585	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
19 - 58345	**B**

	Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
20 - 60463	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
21 - 3309727	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
22 - 42006	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
23 - 168851	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
24 - 39532	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
25 - 92456	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
26 - 206230	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
27 - 376111	**B** Watch Free Video Solution of this Question on Doubtnut

Ques No.	Answer
28 - 46703	C Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
29 - 4055383	A Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
30 - 4954879	A Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
31 - 4728753	C Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
32 - 5991166	C Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
33 - 115061	C Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
34 - 8726	B Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
35 - 52558	A Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**

36 - 42114	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
37 - 47799	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
38 - 1130223	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
39 - 90156	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
40 - 2764693	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
41 - 27273	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
42 - 4582561	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
43 - 123375	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
44 - 61890	**D**

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Ques No.	**Answer**
45 - 1212559	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
46 - 33630	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
47 - 5837957	**C** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
48 - 39884	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
49 - 3442524	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
50 - 1393176	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
51 - 20091	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
52 - 182850	**B**

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Ques No.	**Answer**
53 - 15322	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
54 - 4088874	**D** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
55 - 31257	**A** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
56 - 5684119	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
57 - 27276	**B** Watch Free Video Solution of this Question on Doubtnut
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58 - 113650	**A** Watch Free Video Solution of this Question on Doubtnut
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59 - 344952	**B** Watch Free Video Solution of this Question on Doubtnut
Ques No.	**Answer**
60 - 1439031	**C** Watch Free Video Solution of this Question on Doubtnut