



Maths Special Batch

Calculation and Simplification Sheet- 1



Gagan Pratap Sir



1. $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots + \frac{1}{99 \times 100} = ?$

- a) $\frac{99}{100}$ (b) $\frac{98}{99}$ (c) $\frac{100}{101}$ (d) $\frac{97}{100}$

2. The expression $N = \frac{1}{1+2 \times 2} + \frac{1}{2+2 \times 2} + \frac{1}{3+3 \times 3} + \frac{1}{4+4 \times 4} + \dots \dots \dots \frac{1}{n+n \times n}$, where $n=100$, then find N?

व्यंजक $N = \frac{1}{1+2 \times 2} + \frac{1}{2+2 \times 2} + \frac{1}{3+3 \times 3} + \frac{1}{4+4 \times 4} + \dots \dots \dots \frac{1}{n+n \times n}$, जहाँ $n=100$, तो N ज्ञात करें?

A) 100/101

B) 99/100

C) 9.9

D) 99/101

3. If $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots \dots \dots + \frac{1}{n(n+1)} = \frac{249}{250}$ then what is the value of n ?

यदि $\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \dots \dots \dots + \frac{1}{n(n+1)} = \frac{249}{250}$ है तो n का मान ज्ञात करो।

(A) 299

(B) 249

(C) 250

(D) 248

4. $\frac{1}{3 \times 7} + \frac{1}{7 \times 11} + \frac{1}{11 \times 15} + \dots + \frac{1}{899 \times 903} = ?$

- a) $\frac{21}{509}$ b) $\frac{18}{403}$ c) $\frac{25}{301}$ d) $\frac{29}{31}$

5. If $a_1 = \frac{1}{2 \times 5}$, $a_2 = \frac{1}{5 \times 8}$, $a_3 = \frac{1}{8 \times 11}$ then, $a_1 + a_2 + a_3 + \dots + a_{100} = ?$

- a) $\frac{25}{151}$ b) $\frac{30}{157}$ c) $\frac{1}{4}$ d) $\frac{9}{55}$

6. $\frac{1}{7^2 - 3^2} + \frac{1}{13^2 - 3^2} + \frac{1}{19^2 - 3^2} + \dots + \frac{1}{49^2 - 3^2} = ?$

- a) $\frac{1}{26}$ b) $\frac{3}{52}$ c) $\frac{1}{13}$ d) $\frac{3}{26}$

7. $\frac{1}{1+2} + \frac{1}{1+2+3} + \frac{1}{1+2+3+4} + \dots + \frac{1}{1+2+3+\dots+51} = ?$

- a) $\frac{26}{25}$ b) $\frac{25}{26}$ c) $\frac{15}{17}$ d) $\frac{6}{7}$

8. $\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90} + \frac{1}{110} + \frac{1}{132} = ?$

9. Find the sum of the following: $\frac{1}{9} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} = ?$

निम्नलिखित का योग ज्ञात कीजिए: $\frac{1}{9} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72}$

(SSC GD 2022)

A) $\frac{1}{2}$

B) 1/2520

C) 1/9

D) 2520

10. Evaluate: $\frac{1}{15} + \frac{1}{35} + \frac{1}{63} + \frac{1}{99} + \frac{1}{143}$.

$\frac{1}{15} + \frac{1}{35} + \frac{1}{63} + \frac{1}{99} + \frac{1}{143}$ का मान ज्ञात कीजिए।

- (a) $\frac{4}{39}$ (b) $\frac{7}{39}$

- (c) $\frac{5}{39}$ (d) $\frac{10}{39}$

11. $\frac{1}{1 \times 2} + \frac{1}{1 \times 4} + \frac{1}{2 \times 3} + \frac{1}{4 \times 7} + \frac{1}{3 \times 4} + \frac{1}{7 \times 10} + \dots$ upto 20 terms = ?

- a) 379/308 b) 171/140 c) 379/310 d) 420/341



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12. $\frac{1}{1 \cdot 4 \cdot 7} + \frac{1}{4 \cdot 7 \cdot 10} + \frac{1}{7 \cdot 10 \cdot 13} + \frac{1}{10 \cdot 13 \cdot 16} + \frac{1}{13 \cdot 16 \cdot 19}$

- a) $\frac{25}{608}$ b) $\frac{25}{304}$ c) $\frac{23}{608}$ d) $\frac{23}{304}$

13. $\frac{1}{1 \cdot 3 \cdot 5} + \frac{1}{1 \cdot 4} + \frac{1}{3 \cdot 5 \cdot 7} + \frac{1}{4 \cdot 7} + \frac{1}{5 \cdot 7 \cdot 9} + \frac{1}{7 \cdot 10} + \dots$ 20 times

- a) 6179/15275 b) 6070/14973 c) 7191/15174 d) 5183/16923

14. What is the sum of $1\frac{1}{2} + 4\frac{1}{6} + 7\frac{1}{12} + 10\frac{1}{20} \dots$ Upto 20 terms?

- a) 12410/21 b) 12412/21 c) 12433/21 d) 11794/21

15. What is the value of $\frac{7}{2} + \frac{11}{2} + \frac{7}{6} + \frac{11}{15} + \frac{7}{12} + \frac{11}{35} + \dots + \frac{7}{156} + \frac{11}{575}$?

- $\frac{7}{2} + \frac{11}{2} + \frac{7}{6} + \frac{11}{15} + \frac{7}{12} + \frac{11}{35} + \dots + \frac{7}{156} + \frac{11}{575}$ का मान क्या है?
(a) 3816/325 (b) 3714/345
(c) 3216/315 (d) 3917/355

16. The value of $\frac{3}{70} + \frac{1}{42} + \frac{1}{66} + \frac{3}{286} + \frac{1}{130} + \frac{1}{170}$ is:

- $\frac{3}{70} + \frac{1}{42} + \frac{1}{66} + \frac{3}{286} + \frac{1}{130} + \frac{1}{170}$ का मान है:
(a) $\frac{7}{85}$ (b) $\frac{3}{85}$ (c) $\frac{11}{85}$ (d) $\frac{9}{85}$

17. The value of $\frac{3}{1^2 \cdot 2^2} + \frac{5}{2^2 \cdot 3^2} + \frac{7}{3^2 \cdot 4^2} + \frac{9}{4^2 \cdot 5^2} + \dots + \frac{19}{9^2 \cdot 10^2}$ is:

- (a) $\frac{1}{100}$ (b) $\frac{99}{100}$ (c) 1 (d) $\frac{11}{100}$

18. If $\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \dots = \frac{\pi^2}{6}$

Then $\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \dots = ?$

- a) $\frac{\pi^2}{12}$ b) $\frac{\pi^2}{8}$ c) $\frac{\pi^2}{16}$ d) $\frac{\pi^2}{6}$

19. $\frac{(4 \times 7 + 2)(6 \times 9 + 2) - (100 \times 103 + 2)}{(5 \times 8 + 2)(7 \times 10 + 2) - (99 \times 102 + 2)} = ?$

- a) 510 b) 640 c) 500 d) 615