

I. Найти общий член ряда

1. $\frac{2}{5} + \frac{4}{8} + \frac{6}{11} + \frac{8}{14} + \dots$
2. $\frac{3}{4} + \frac{4}{9} + \frac{5}{16} + \frac{6}{25} + \frac{7}{36} + \dots$
3. $1 + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + \frac{1}{25} + \dots$
4. $1 + \frac{1}{2} + 3 + \frac{1}{4} + 5 + \frac{1}{6} + \dots$
5. $\frac{1}{\sqrt{2}} - \frac{1}{\sqrt{5}} + \frac{1}{\sqrt{10}} - \frac{1}{\sqrt{17}} + \dots$
6. $\frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{8} + \frac{1}{10} + \dots$
7. $2 + \frac{2 \cdot 4}{1 \cdot 4} + \frac{2 \cdot 4 \cdot 6}{1 \cdot 4 \cdot 7} + \frac{2 \cdot 4 \cdot 6 \cdot 8}{1 \cdot 4 \cdot 7 \cdot 10} + \dots$
8. $1 - \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \dots$
9. $\frac{1}{1 \cdot 2 \cdot 3} + \frac{1}{2 \cdot 3 \cdot 4} + \frac{1}{3 \cdot 4 \cdot 5} + \frac{1}{4 \cdot 5 \cdot 6} + \dots$
10. $-1 + \frac{2}{2} - \frac{3}{4} + \frac{4}{8} - \frac{5}{16} + \dots$
11. $\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{5}} + \frac{1}{\sqrt{8}} + \frac{1}{\sqrt{11}} + \frac{1}{\sqrt{14}} + \dots$
12. $0,1 - 0,01 + 0,001 - 0,0001 + 0,00001 - \dots$
13. $-\frac{2}{5} + \frac{4}{8} - \frac{6}{11} + \frac{8}{14} - \dots$
14. $\frac{3}{4} - \frac{4}{9} + \frac{5}{10} - \frac{6}{25} + \dots$
15. $\frac{1}{1} + \frac{4}{1 \cdot 3} + \frac{9}{1 \cdot 3 \cdot 5} + \frac{16}{1 \cdot 3 \cdot 5 \cdot 7} + \dots$
16. $\frac{2}{3} + \left(\frac{3}{8}\right)^2 + \left(\frac{4}{13}\right)^3 + \left(\frac{5}{18}\right)^4 + \dots$
17. $1 + \frac{2}{5} + \frac{3}{25} + \frac{4}{125} + \frac{5}{625} + \dots$

18. $\frac{3}{2^{10}} + \frac{6}{3^{10}} + \frac{9}{4^{10}} + \frac{12}{5^{10}} + \dots$
19. $1 + \frac{2}{3} + \frac{4}{5} + \frac{8}{7} + \frac{16}{9} + \frac{32}{11} + \dots$
20. $\frac{1}{2} + \frac{3}{6} + \frac{5}{12} + \frac{7}{20} + \frac{9}{30} + \dots$
21. $\frac{2}{5} + \frac{4}{8} + \frac{6}{11} + \frac{8}{14} + \frac{10}{17} + \dots$
22. $\frac{5}{4} + \frac{8}{9} + \frac{11}{16} + \frac{14}{25} + \frac{17}{36} + \dots$
23. $1 - \frac{1}{4} + \frac{1}{9} - \frac{1}{16} + \frac{1}{25} - \dots$
24. $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \dots$
25. $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6} + \dots$
26. $1 + \frac{1}{1 \cdot 3} + \frac{1}{1 \cdot 3 \cdot 5} + \frac{1}{1 \cdot 3 \cdot 5 \cdot 7} + \dots$
27. $\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \dots$
28. $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots$
29. $\frac{1}{11} + \frac{2}{101} + \frac{3}{1001} + \frac{4}{10001} + \dots$
30. $1 + \frac{1}{2} + \frac{1}{5} + \frac{1}{10} + \frac{1}{17} + \frac{1}{26} + \dots$

II. Найдите сумму ряда или установите его расходимость:

1. $\sum_{n=1}^{\infty} \frac{1}{(5n-4) \cdot (5n+1)}$ 2. $\sum_{n=1}^{\infty} \frac{1}{(2n-1) \cdot (2n+1)}$
3. $\sum_{n=1}^{\infty} \frac{1}{(3n-2) \cdot (3n+1)}$ 4. $\sum_{n=1}^{\infty} \frac{1}{(4n-3) \cdot (4n+1)}$

$$5. \sum_{n=1}^{\infty} \frac{1}{(5n-4) \cdot (5n+1)}.$$

$$7. \sum_{n=1}^{\infty} \frac{1}{(7n-6) \cdot (7n+1)}.$$

$$9. \sum_{n=1}^{\infty} \frac{1}{(9n-8) \cdot (9n+1)}.$$

$$11. \sum_{n=1}^{\infty} \frac{1}{(8n-7) \cdot (8n+1)}.$$

$$13. \sum_{n=1}^{\infty} \frac{1}{(6n-5) \cdot (6n+1)}.$$

$$15. \sum_{n=1}^{\infty} \frac{1}{(10n-9) \cdot (10n+1)}.$$

$$17. \sum_{n=1}^{\infty} \frac{1}{(4n-3) \cdot (4n+1)}.$$

$$19. \sum_{n=1}^{\infty} \frac{1}{(13n-12) \cdot (13n+1)}.$$

$$21. \sum_{n=1}^{\infty} \frac{1}{(10n-9) \cdot (10n+1)}.$$

$$23. \sum_{n=1}^{\infty} \frac{1}{(8n-7) \cdot (8n+1)}.$$

$$25. \sum_{n=1}^{\infty} \frac{1}{(8n-5) \cdot (6n+1)}.$$

$$27. \sum_{n=1}^{\infty} \frac{1}{(12n-11) \cdot (12n+1)}.$$

$$29. \sum_{n=1}^{\infty} \frac{1}{(2n-1) \cdot (2n+1)}.$$

$$6. \sum_{n=1}^{\infty} \frac{1}{(15n-14) \cdot (15n+1)}.$$

$$8. \sum_{n=1}^{\infty} \frac{1}{(3n-2) \cdot (3n+1)}.$$

$$10. \sum_{n=1}^{\infty} \frac{1}{(5n-4) \cdot (5n+1)}.$$

$$12. \sum_{n=1}^{\infty} \frac{1}{(14n-13) \cdot (14n+1)}.$$

$$14. \sum_{n=1}^{\infty} \frac{1}{(11n-10) \cdot (11n+1)}.$$

$$16. \sum_{n=1}^{\infty} \frac{1}{(9n-8) \cdot (9n+1)}.$$

$$18. \sum_{n=1}^{\infty} \frac{1}{(n) \cdot (n+1)}.$$

$$20. \sum_{n=1}^{\infty} \frac{1}{(5n-4) \cdot (5n+1)}.$$

$$22. \sum_{n=1}^{\infty} \frac{1}{(9n-8) \cdot (9n+1)}.$$

$$24. \sum_{n=1}^{\infty} \frac{1}{(7n-6) \cdot (7n+1)}.$$

$$26. \sum_{n=1}^{\infty} \frac{1}{(5n-4) \cdot (5n+1)}.$$

$$28. \sum_{n=1}^{\infty} \frac{1}{(3n-2) \cdot (3n+1)}.$$

$$30. \sum_{n=1}^{\infty} \frac{1}{(n) \cdot (n+1)}.$$