

Obliczyć granicę ciągu o wyrazie ogólnym

1.  $a_n = \left(\frac{n+5}{n}\right)^n$ .

2.  $a_n = \frac{2n^2-3n+5}{3+7n-6n^2}$ .

3.  $a_n = \frac{n^4-5n+5}{8n^5+7n-6}$ .

4.  $a_n = \frac{2n^2-5n+1}{7n-6}$ .

5.  $a_n = \frac{e^{2(n-1)}-5}{e^{2n}-7}$ .

6.  $a_n = \frac{5 \cdot 3^{2n}-1}{4 \cdot 9^{n+7}}$ .

7.  $a_n = \sqrt[n]{3^n + 2^n}$ .

8.  $a_n = \sqrt[n]{\left(\frac{2}{3}\right)^n + \left(\frac{3}{4}\right)^n}$ .

9.  $a_n = \sqrt{n+2} - \sqrt{n}$ .

10.  $a_n = n - \sqrt{n^2 + 5n}$

11.  $\lim_{n \rightarrow \infty} \left(\frac{2}{n+4}\right)$

12.  $\lim_{n \rightarrow \infty} \left(\frac{4}{6-2n}\right)$

13.  $\lim_{n \rightarrow \infty} \left(\frac{3}{n^2+4n}\right)$

14.  $\lim_{n \rightarrow \infty} \left(\frac{2n-4}{5n+9}\right)$

15.  $\lim_{n \rightarrow \infty} \left(\frac{5n^2+3n-2}{2n^2+5}\right)$

16.  $\lim_{n \rightarrow \infty} \left(\frac{n^5-2n^3-2}{2n^3+5}\right)$

17.  $\lim_{n \rightarrow \infty} \left(\frac{(n-1)(n+4)}{(2n+3)^2}\right)$

18.  $\lim_{n \rightarrow \infty} \left(\frac{1}{n} - \sqrt{2}\right)$

$$19. \lim_{n \rightarrow \infty} \left( \frac{1}{n^2} + \frac{1}{n^3} - \frac{100}{n^5} \right)$$

$$20. \lim_{n \rightarrow \infty} \left( \frac{1-2n}{\sqrt{n^2-1}} \right)$$

$$21. \lim_{n \rightarrow \infty} \left( \frac{\sqrt{n}}{\sqrt{n+\sqrt{n}}} \right)$$

$$22. \lim_{n \rightarrow \infty} \left( \frac{\sqrt{n}}{n} \right)$$

$$23. \lim_{n \rightarrow \infty} (1 - 2^n)$$

$$24. \lim_{n \rightarrow \infty} (1 + e^n)$$

$$25. \lim_{n \rightarrow \infty} (2 - e^{-n})$$

$$26. \lim_{n \rightarrow \infty} (\ln(n))$$

$$27. \lim_{n \rightarrow \infty} \left( \frac{2n+(-1)^n}{3n+2} \right)$$

$$28. \lim_{n \rightarrow \infty} (n + (-1)^n)$$

$$29. \lim_{n \rightarrow \infty} \left( \frac{3n}{\sqrt{n^2+1}} - \frac{9n}{\sqrt[3]{n^3+1}} \right)$$

### WolframAlpha

granica ciągu  $a_n = \sqrt{4n^2 + 5n - 7} - 2n$

limit(4\*n^2+5\*n-7)^0.5-2\*n as n->infinity

Wcisnąć „=”

granica ciągu

limit (1+1/n)^n as n->infinity

Wcisnąć „=”

wykres dla n od 1 do 50:

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discreteplot (4*n^2+5*n-7)^0.5-2*n, {n,1,50}
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Wcisnąć „=”