

Nalezněte rezidua ve všech singularitách dané funkce.

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| 1. | $f(z) = \frac{1}{z^3 + z}$ | 11. | $\tanh z$ |
| 2. | $\frac{z^2}{z^4 + 1}$ | 12. | $\frac{\cos z}{(z - 1)^2}$ |
| 3. | $\frac{z^2}{(z + 1)^3}$ | 13. | $\frac{1}{e^z + 1}$ |
| 4. | $\frac{1}{(z^2 + 1)^3}$ | 14. | $\frac{\sin \pi z}{(z - 1)^3}$ |
| 5. | $\frac{1}{(z^2 + 1)(z - 1)^2}$ | 15. | $\frac{1}{\sin z^2}$ |
| 6. | $\frac{z^{2n}}{(z - 1)^n}, \quad n \in \mathbb{N}$ | 16. | $\frac{1}{z^6(z - 2)}$ |
| 7. | $\frac{1}{\sin \pi z}$ | 17. | $\frac{z^8 + 1}{z^6(z + 2)}$ |
| 8. | $\cotg \pi z$ | 18. | $\frac{z^{10} + 1}{z^6(z^2 + 4)}$ |
| 9. | $\frac{1}{\sinh z}$ | 19. | $\frac{\cos z}{(z^2 + 1)^2}$ |
| 10. | $\frac{1}{\cosh z}$ | 20. | $\frac{\sin z}{(z^2 + 1)^2}$ |