Esercizi di calcolo di limiti

9 Dicembre 2013

1. $\lim_{x\to 1} \frac{x^2-1}{x^3-1}$
2. $\lim_{x\to\infty} \frac{3x^3-4x^2+5x-1}{2x^4}$
3. $\lim_{x\to\infty} \frac{7x^5+6x^4+1}{2x^5+3}$
4. $\lim_{x\to 2^+} \frac{5x^2+3x-1}{x^2-3x+2}$
5. $\lim_{x\to 0} \frac{5x-2\tan x}{\sin x+4\tan^2 x}$
6. $\lim_{x\to \pi^\pm} \frac{\sqrt{1+\sin x}-\sqrt{1-\sin x}}{\sin^2 x}$
7. $\lim_{x\to 1} x^{\frac{1}{1-x}}$
8. $\lim_{x\to 0} \frac{\ln(1-5x)}{\sqrt{1-\cos x}}$
9. $\lim_{x\to 0} \frac{e^{ax}-e^{bx}}{x}, \quad a,b\in\mathbb{R}$
10. $\lim_{x\to +\infty} \ln(\sqrt{x^2+1}-x)$
11. $\lim_{x\to \frac{7}{6}} \frac{\sin(6x-7)}{e^{12x-14}-1}$
12. $\lim \frac{a^n}{b^n}, \quad a,b>0,\ a<b$
13. $\lim_n n(e^{-\frac{1}{n}}-1)$
14. $\lim_n \frac{\ln n}{n+1}$
15. $\lim_n \frac{\ln(n+1)}{\ln(n-1)}$
16. $\lim_n \frac{e^n}{n!}$
17. $\lim_n \arctan\left(\frac{n^2+1}{n-1}\right)$
18. $\lim_n \frac{3n^4-n\arctan n}{2\pi n^4-n^3+n^2+2}$
19. $\lim_n \left(1+\frac{2}{n}\right)^n$
20. $\lim_n \left(\frac{n+1}{n-1}\right)^{n+3}$
21. $\lim_n \frac{(n!)^2}{n^n}$
22. $\lim_n \frac{n!2^n}{n^n}$
23. $\lim_n (\sqrt{n})^n - n^{\sqrt{n}}$
24. $\lim_n n^8+(-1)^n n^5$
25. $\lim_n n^5+(-1)^n n^8$
26. $\lim_n n\left(\sqrt{1+\frac{2}{n^2}}-\sqrt{1-\frac{4}{n}}\right)$
27. $\lim_n \sqrt[n]{2^n+3^n}$
28. $\lim_n \sqrt[n]{a^{2n}+1}, \quad a>0$
29. $\lim_n \sqrt{n}(\sqrt{n+1}-\sqrt{n})$