Lecture Eighteen Practice

Practice problems

Abstract. *Practice problems for Lecture Eighteen Content*

Problem. 1 : Compute the limit

$$\lim_{x\to\infty} \frac{\ln(x)}{x^2+1} = \boxed{}\ ?$$

Problem. 2 : Compute the limit

$$\lim_{x\to\infty} \frac{e^x}{x^2} = \boxed{}\ ?$$

Problem. 3 : Compute the limit

$$\lim_{x\to\infty} \frac{\ln(x)}{\sqrt{x}} = \boxed{}\ ?$$

Problem. 4 : Compute the limit

$$\lim_{x\to 0} \frac{\tan(x)-x}{x^3} = \boxed{}\ ?$$

Problem. 5 : Compute the limit

$$\lim_{x\to 1}\frac{x^3-2x^2+1}{x^3-1}=$$?

Problem. 6 : Compute the limit

$$\lim_{x\to\infty} x\sin\left(\frac{\pi}{x}\right)=$$?

Problem. 7 : Compute the limit

$$\lim_{x\to\infty}\sqrt{x}e^{-\frac{x}{2}}=$$?

Problem. 8 : Compute the limit

$$\lim_{x\to-\infty} x\ln\left(1-\frac{1}{x}\right)=$$?

Problem. 9 : Compute the limit

$$\lim_{x\to 0^+}\left(\frac{1}{x}-\frac{1}{e^x-1}\right)=$$?

Problem. 10 : Compute the limit

$$\lim_{x\to 0}\csc(x)-\cot(x)=$$?

Problem. 11 : Compute the limit

$$\lim_{x \to 0^+} x^{\sqrt{x}} = \boxed{}\ ?$$

Problem. 12 : Compute the limit

$$\lim_{x \to \infty} \left(1 + \frac{a}{x}\right)^{bx} = \boxed{}\ ?$$

Problem. 13 : Compute the limit

$$\lim_{x \to 1} (2 - x)^{\tan\left(\frac{\pi x}{2}\right)} = \boxed{}\ ?$$