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Lecture One Practice

Practice problems
for Lecture One

Abstract. *Practice problems for Lecture One Content*

Problem. 1 : Determine if the limit approaches a finite number, ∞, $-\infty$, or does not exist. (If the limit does not exist, write DNE)

$$\lim_{x \to 4} \frac{2x + 8}{x^2 - 16} = \boxed{} \; \boxed{?}$$

Problem. 2 : Determine if the limit approaches a finite number, ∞, $-\infty$, or does not exist. (If the limit does not exist, write DNE)

$$\lim_{x \to 0^+} -\frac{28}{x^4} = \boxed{} \; \boxed{?}$$

Problem. 3 : Determine the limit.

$$\lim_{x \to -6^-} \frac{x + 8}{x + 6} = \boxed{} \; \boxed{?}$$

Problem. 4 : Determine the limit.

$$\lim_{x \to -9} \frac{-5-x}{(x+9)^2} = \boxed{} \quad \boxed{?}$$

Problem. 5 : Determine the limit.

$$\lim_{x \to 5\pi/2^-} x^2 \cot(x) = \boxed{} \quad \boxed{?}$$

Problem. 6 : Determine the limit.

$$\lim_{x \to 0^+} \frac{8}{x} - \ln(x) = \boxed{} \quad \boxed{?}$$

Problem. 7 : Evaluate the function for values of x that approach 2 from the left and from the right.

$$\lim_{x \to 2^-} \frac{1}{x^3 - 8} = \boxed{} \quad \boxed{?}$$

$$\lim_{x \to 2^+} \frac{1}{x^3 - 8} = \boxed{} \quad \boxed{?}$$

Problem. 8 : Determine the limit.

$$\lim_{x \to 2^+} \frac{9\,e^x + 4}{x - 2} = \boxed{} \quad \boxed{?}$$

Problem. 9 : Let

$$f(x) = \begin{cases} x^2 - 12\,x + 36 & , & x < 6 \\ x - 5 & , & 6 \le x < 8 \\ 6 & , & 8 < x < 10 \\ 5 & , & 10 < x \end{cases}$$

Determine if the limit approaches a finite number, ∞, $-\infty$, or does not exist. (If the limit does not exist, write DNE.)

$$\lim_{x \to 5^+} f(x) = \boxed{1} \quad ?$$

$$\lim_{x \to 6^-} f(x) = \boxed{0} \quad ?$$

$$\lim_{x \to 6} f(x) = \boxed{\text{DNE}} \quad ?$$

$$\lim_{x \to 8^-} f(x) = \boxed{3} \quad ?$$

$$\lim_{x \to 8^+} f(x) = \boxed{6} \quad ?$$

$$\lim_{x \to 9} f(x) = \boxed{6} \quad ?$$

$$\lim_{x \to 10^-} f(x) = \boxed{6} \quad ?$$

$$\lim_{x \to 10^+} f(x) = \boxed{5} \quad ?$$

$$\lim_{x \to 10} f(x) = \boxed{\text{DNE}} \quad ?$$