

Calculus 2 3 Properties of Limits Part I

Lesson 260 | Calculus AB | Limits and one-sided limits

<https://www.youtube.com/watch?v=Kwf-BRUP7W8>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Evaluate $\lim_{x \rightarrow 5} \frac{x^2 - 25}{6(x - 5)}$. Explain why substitution alone is inconclusive.

02

Evaluate $\lim_{x \rightarrow 14} \frac{x^2 - 196}{7(x - 14)}$. Explain why substitution alone is inconclusive.

03

Evaluate $\lim_{x \rightarrow 9} \frac{x^2 - 81}{13(x - 9)}$. Explain why substitution alone is inconclusive.

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04

Evaluate $\lim_{x \rightarrow 12}$ of $(x^2 - 144)/(3(x - 12))$. Explain why substitution alone is inconclusive.

05

Evaluate $\lim_{x \rightarrow 9}$ of $(x^2 - 81)/(2(x - 9))$. Explain why substitution alone is inconclusive.

06

Evaluate $\lim_{x \rightarrow 12}$ of $(x^2 - 144)/(2(x - 12))$. Explain why substitution alone is inconclusive.

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01

Evaluate $\lim_{x \rightarrow 5} \frac{x^2 - 25}{6(x - 5)}$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 25 = (x - 5)(x + 5)$; cancel for $x \neq 5$. Limit of $(x + 5)/6$ is $5/3$.

02

Evaluate $\lim_{x \rightarrow 14} \frac{x^2 - 196}{7(x - 14)}$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 196 = (x - 14)(x + 14)$; cancel for $x \neq 14$. Limit of $(x + 14)/7$ is 4.

03

Evaluate $\lim_{x \rightarrow 9} \frac{x^2 - 81}{13(x - 9)}$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 81 = (x - 9)(x + 9)$; cancel for $x \neq 9$. Limit of $(x + 9)/13$ is $18/13$.

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04

Evaluate $\lim_{x \rightarrow 12}$ of $(x^2 - 144)/(3(x - 12))$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 144 = (x - 12)(x + 12)$; cancel for $x \neq 12$. Limit of $(x + 12)/3$ is 8.

05

Evaluate $\lim_{x \rightarrow 9}$ of $(x^2 - 81)/(2(x - 9))$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 81 = (x - 9)(x + 9)$; cancel for $x \neq 9$. Limit of $(x + 9)/2$ is 9.

06

Evaluate $\lim_{x \rightarrow 12}$ of $(x^2 - 144)/(2(x - 12))$. Explain why substitution alone is inconclusive.

Direct substitution gives $0/0$. Factor $x^2 - 144 = (x - 12)(x + 12)$; cancel for $x \neq 12$. Limit of $(x + 12)/2$ is 12.