

Calculus 2 7 Derivative with Limit Definition and Rate of Change

Lesson 263 | Calculus AB | Limit definition of derivative

<https://www.youtube.com/watch?v=1A8vGVcW5M4>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Use the limit definition to differentiate $f(x)=5x^2+8x$.

02

Use the limit definition to differentiate $f(x)=2x^2+6x$.

03

Use the limit definition to differentiate $f(x)=13x^2+2x$.

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04

Use the limit definition to differentiate $f(x)=9x^2+5x$.

05

Use the limit definition to differentiate $f(x)=5x^2+13x$.

06

Use the limit definition to differentiate $f(x)=11x^2+2x$.

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01

Use the limit definition to differentiate $f(x)=5x^2+8x$.

$[f(x+h)-f(x)]/h=10x+5h+8$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=10x+8$.

02

Use the limit definition to differentiate $f(x)=2x^2+6x$.

$[f(x+h)-f(x)]/h=4x+2h+6$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=4x+6$.

03

Use the limit definition to differentiate $f(x)=13x^2+2x$.

$[f(x+h)-f(x)]/h=26x+13h+2$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=26x+2$.

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04

Use the limit definition to differentiate $f(x)=9x^2+5x$.

$[f(x+h)-f(x)]/h=18x+9h+5$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=18x+5$.

05

Use the limit definition to differentiate $f(x)=5x^2+13x$.

$[f(x+h)-f(x)]/h=10x+5h+13$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=10x+13$.

06

Use the limit definition to differentiate $f(x)=11x^2+2x$.

$[f(x+h)-f(x)]/h=22x+11h+2$ for $h \neq 0$. Let $h \rightarrow 0$: $f'(x)=22x+2$.